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APPLETONS'

ANNUAL CYCLOPÆDIA

AND

REGISTER OF IMPORTANT EVENTS

OF THE YEAR

1884.

EMBRACING POLITICAL, CIVIL, MILITARY, AND SOCIAL AFFAIRS; PUBLIC DOCUMENTS; BIOGRAPHY, STATISTICS, COMMERCE, FINANCE, LITERATURE, SCIENCE, AGRICULTURE, AND MECHANICAL INDUSTRY.

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CONTRIBUTORS.

Among the Contributors to this Volume of the "Annual Cyclopædia" are the following:

Edward Atkinson.
Railway Service in the United States.

Marcus Benjamin, Ph. D.
Pharmacy,
and other articles.

James P. Carey,
Financial Editor of the Journal of Commerce.
Financial Review of 1884.

Titus Munson Coan, M. D.
Clubs,
Hawaiian Islands,
and other articles.

Henry C. Coe, M. D., L. R. C. P.
Medical Articles.

Eaton S. Drone.
Law, Constitutional,
Mignonette Case, The.

William R. Dudley,
Professor in Cornell University.
Botany.

Frederik A. Fernald.
Spelling Reform.

George T. Ferris.
Literature, American.

A. K. Fiske.
New Orleans Exposition,
New York,
United States.

Edward O. Graves,
Assistant Treasurer of the United States.
Reform in Civil Service,
United States, Finances of the.

Rev. William E. Griffis.
Japan.

James W. Hawes.
Articles on the States and Territories.

Albert B. Herrick, Ph. D.
Electrical Exhibition at Philadelphia.

James L. Hughes,
Public School Inspector, Toronto.
Canadian Articles.

Mary Gay Humphreys.
Decorative Art in America.

Frank Huntington, Ph. D.
Austria-Hungary,
Bulgaria,
China,
Germany,
and other articles.

Charles Kirchhoff.
Central and South American Articles.

William H. Larrabee.
Anglican Churches,
Methodists,
Mountain Exploration,
Presbyterians,
and other articles.

J. F. McClure,
of Outing.
Bicycles and Tricycles.

Lieut.-Com. A. R. McNair,
Secretary of the Saratoga Toboggan Club.
Tobogganing.

Charles L. Norton.
Canoeing,
Skate,
and other articles.

Frank H. Norton.
Literature, British,
and other articles.

Prof. Simon Newcomb,
Washington, D. C.
Astronomical Progress and Discovery.

Philip Ripley.
Cleveland, Grover,
Hendricks, Thomas A.

Theodore F. Seward,
President of the American Tonic Sol-Fa Association.
Music, Tonic Sol-Fa System of.

John Gilmary Shea, LL. D.
Roman Catholic Church.

T. O'Conor Sloane, Ph. D.
O'Conor, Charles,
Patents.

Prof. J. A. Spencer, D. D.
Literature, Continental,
Protestant Episcopal Church,
and other articles.

Robert K. Turnbull.
Dogs.

R. H. Ward, M. D.
Microscopy.

John A. Weisse, M. D.
Obelisk.

Charles F. Wingate,
Sanitary Engineer.
Adulteration of Food,
Sanitary Science.

William J. Youmans, M. D.
Chemistry,
Liquefaction of Gases,
Metallurgy,
Physiology.

H B Hall Jr

Grover Cleveland

D. Appleton & Co.

PREFACE.

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PREFACE.

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PREFACE.

THE new features introduced in the ANNUAL CYCLOPÆDIA of last year are continued in the present volume, and some novelties will also be found in its pages. The account of the War in Egypt is accompanied by an unusually clear, full-page map, made for this work, and by illustrations of scenes on the Nile. The Franco-Chinese War in Tonquin is recorded, with illustrations, in the article on China. The reader will also naturally turn to the article on Afghanistan, where two great European powers seem likely to come into conflict. The always interesting subject of Arctic Exploration is illustrated with a map, and a landscape at the farthest point that has yet been reached by voyagers toward the pole. The engravings on steel this year represent President Cleveland, the King of Italy, and General Gordon, who perished at Khartoum. That of the President is accompanied by a carefully prepared biographical sketch. Among the other portraits are those of Vice-President Hendricks, Fanny Elssler, Sir Bartle Frere, Henry Fawcett, Arnold Guyot, Charles O'Conor, Wendell Phillips, Arthur Wellesley Peel (the new Speaker of the British House of Commons), Charles Reade, General Stewart, and General Todleben.

Our Astronomical article is contributed by Prof. Simon Newcomb, of the Washington Observatory; and our articles on Chemistry, Metallurgy, and Physiology, as usual, by Dr. Youmans. The construction and work of the Microscope, not very recently written upon for any cyclopædia, are here treated fully, and brought down to date, with more than forty illustrations, by Dr. R. H. Ward, one of the best microscopists in the United States. Botany—another science not recently treated by cyclopedists—is contributed by Prof. Dudley, of Cornell University. The manias for Bicycling, Skating, and Tobogganing are recognized and discussed, with illustrations, by good authorities. The article on the Skate is especially interesting, as it exhibits the development of the instrument from the bone-skates of prehistoric man to the latest improved roller-skates. The Tonic Sol-fa System of Music is set forth by the President of the American Association, Prof. Theodore F. Seward; and the Ocarina, a new and peculiar musical instrument, is described and pictured. The disease-theory of Micro-Organisms is given with its latest developments. The other scientific subjects include Liquefaction of Gases, Cholera, the new disease called Miryachit, the new anæsthetic Cocaine, and—what, perhaps, is most immediately important of all—Sanitary Science. The last-named article is contributed by

Charles F. Wingate, the well-known sanitary engineer, of New York. Under Adulteration of Food, and Canned Provisions, the housekeeper will find valuable information drawn from the most recent investigations.

In addition to the usual article on Geographical Discovery, we have this year one on the opening up to commerce of the great Congo country, illustrated with a map, and one on Mountain Exploration, noting some remarkable achievements; while recent discoveries in Archæology and Paleontology are chronicled and illustrated.

The peculiar Presidential contest of 1884 is recorded in the articles United States, Grover Cleveland, and James G. Blaine, with full statistics of the results; while the articles on some of the States and Territories exhibit movements and tendencies that may give shape to the political struggles of the near future. The topic of Reform in the Civil Service, an important factor in the great problem, is treated by Edward O. Graves, Assistant Treasurer of the United States, who has been among the foremost in the movement. This and the Reform article of our volume for 1883 make together an exhaustive history of the subject. What was done in the business world may be learned from the articles on United States Finances; Railway Service, from the pen of Edward Atkinson; Financial Review of 1884, contributed by Mr. Carey of the "Journal of Commerce"; and the analysis of the peculiar course of the Metal Market. The Exposition at New Orleans and the Electrical Exhibition at Philadelphia are described and illustrated.

Some important decisions in Constitutional Law that were reached in the course of the year are recorded, and the history of a novel question in jurisprudence is given under the title Mignonette Case. The wonderful recent development of taste in ornament is discussed under Decorative Art in America; the proposed Spelling Reform is presented by one of its devotees in its own peculiar style; and the subject of Photography for amateurs is suggestively treated.

Under Obelisk the reader will find not only a description of the New York monolith, but tabulated information concerning nearly all the known obelisks in the world, contributed by the venerable Dr. Weisse, who has made a long study of the subject. The completed Washington Monument is described in an article by itself. Among the other topics of curious interest, treated in occasional articles, are Navigable Balloons, Catamaran, Crape-Stone, Clubs, the Dynamite Gun, Dogs, and Net-Making.

While no yearly record can be absolutely complete within the compass of a single volume, it is hoped that this presentation of the world's progress in 1884 will be found reasonably full and judiciously presented. At the close of the book we give an analytical index that covers the nine volumes (including the present one) of the New Series.

NEW YORK, *May 1, 1885.*

THE

ANNUAL CYCLOPÆDIA.

A

ADULTERATION OF FOOD. During recent years there has been a great popular outcry in regard to the injurious adulteration of various articles of food, and the newspapers and health journals have been filled with sensational statements of the vast amount of dangerous impurities to be found in our food-supply. As a fact, few articles of food are so adulterated as to be hurtful to health; they are more commonly sophisticated by the intermixture of other substances in a manner chiefly injurious to commercial interests. It is necessary to distinguish clearly between these two classes of deceptions, so as to estimate the danger from adulteration, and to provide proper safeguards against it.

Impurities of food may be divided into three classes: 1. Deleterious adulterations, such as the use of red-lead in cayenne pepper, or chromate of lead in mustard. 2. By far the largest class, fraudulent adulterations, illustrated by the use of flour in mustard, chicory in coffee, and terra alba in cream of tartar. 3. Accidental adulterations, due to the mixture of small amounts of deleterious substances, owing to some imperfection in the process of manufacture. In these cases the amount of impurity is limited, and the effect is unimportant.

The following statistics show the prevalence and proportion of adulteration of food as revealed by recent official investigations abroad and at home. In March, 1883, out of 1,118 articles examined at the Paris laboratory by Government officials, 271 were returned as good, 231 as passable, 616 as bad, of which 545 were "not injurious," and 71 were pronounced injurious. Wines formed by far the largest portion of articles examined, and, as a rule, were reported as deficient in purity. Of 257 samples of milk, 26 were returned as good, 116 as passable, and 115 as bad, but not injurious. In Great Britain, since 1875, the Government returns show the following number of articles analyzed, and the percentage of adulteration:

YEAR.	Number analyzed.	Per cent. adulterated.
1875–'76	15,989	18·10
1877	11,943	17·70
1878	15,107	16·58
1879	17,574	17·25
1880	17,919	17·47
1881	17,863	16·56
1882	14,900	16·50

These totals do not represent foods exclusively, for drugs, wines, spirits, and beer are included, nor do they cover the whole of Great Britain. As a result of the past five years' official supervision in that country, the amount of adulteration was reduced only 1·2 per cent. Of the samples of milk analyzed, the per cent. of adulterated varied from 26 in 1877 to 20·35 in 1882; butter, including oleomargarine sold as butter, 12 to 15 per cent.; groceries, 13 to 10 per cent.; bread and flour, 6·84 to 4·32 per cent. In Canada, as a result mainly of publishing the names of dealers in impure articles, the amount of adulteration has been greatly reduced. In 1876, when the work began, 51·66 per cent. of the articles examined were adulterated. In 1882 these figures had been reduced to 25·66 per cent.

The reports of State analysts in New York, New Jersey, Massachusetts, Michigan, and other States, all of late date, indicate that staple articles of food, such as are found in ordinary households, are rarely adulterated with injurious substances. The sophistication of such articles would be about as follows: Spices and condiments, 66 per cent.; ground coffee, 45 per cent.; tea, 48 per cent.; sugar, the highest grades rarely, the lower grades, 20 per cent.; sirup, 50 per cent.; milk, when not inspected, 50 per cent.; flour, none; bread, about 2 per cent.; cream of tartar and baking-powders, 44 per cent.; butter, 40 per cent. (by the substitution of other fats); vinegar is rarely adulterated, but is seldom made of cider; olive-oil, 60 per cent.

The character of the adulterants employed is as follows: Spices and condiments are adulterated with exhausted spices; ground cereals with flour and buckwheat hulls; coffee with chicory, rye, and other cereals; tea with exhausted tea-leaves, leaves of other plants, and damaged tea coated to improve the looks; sugar with grape-sugar; sirup with grape-sugar, in many cases all glucose; milk with water, alkaline salts to neutralize acidity, and preservatives, and it is often skimmed; bread with alum, added to increase whiteness, rarely used in this country; cream of tartar and baking-powders with gypsum, starches, and "fillers" to increase bulk; butter, other fats are substituted for it, or it is adulterated with foreign fats; olive-oil with peanut and cotton-seed oil. In addition to these articles, several new and peculiar substances are largely used for sophistication. Oleomargarine, for example, is manufactured on an enormous scale. Three factories alone in New York State turn out not less than 4,500 tons a year, and there are five or six other factories in the country. But a small portion of their product is sold to the consumer for what it really is. Fears have been expressed that animal parasites, or diseases, might be introduced into the human system by the use of this substitute for butter; but the best authorities declare that there is no such danger from the use of oleomargarine. As the aim of the manufacturers is to produce a sweet and merchantable article, the use of putrid or ill-smelling fat would be against their interests. Nevertheless, the propriety of compelling dealers to label all packages of oleomargarine with its true name is generally recognized. Lard-cheese, made by combining lard and oleomargarine-oil, and "lardine," an artificial butter, are also largely manufactured. The production of glucose exceeds that of oleomargarine. It is estimated that ten pounds of glucose per capita is made and sold each year in the United States. It is largely employed in making sirups, strained honey, confectionery, and the lower grades of sugar. Prof. C. F. Chandler, and other chemists, pronounce glucose to be a harmless article of food. The frequent statements that sulphuric acid has been found in large and poisonous quantities in glucose sirups, are denied. "Sulphuric acid is employed in the conversion of starch into grape-sugar, but the acid is afterward neutralized by means of milk of lime. If any acid exists in the sirup, it is either in combination with the lime or free, and in very small quantities — a condition strenuously avoided by the manufacturers."

Cases of acute poisoning have been repeatedly charged to the influence of canned foods. Certain acid fruits in cans, such as apples and cherries, and vegetables like tomatoes, act upon lead or tin, and dissolve enough of the metal to cause vomiting, purging, and cramps. Such cases, however, are rare, in view of the enormous consumption of canned products, especially in the West, and in the army and navy.* It is proposed, as a safeguard, to require the year in which the can was packed to be stamped on it.

Besides investigating the character of domestic food-supply, sanitary officials have recently been led to take cognizance of the methods of production and distribution, especially of bread and milk. Bake-shops are usually in cellars, artificially lighted, and are often damp, foul, and unwholesome. They are sometimes used as sleeping-places, and the bakers work long hours and are exposed to sickness, especially from skin-diseases. Dr. W. K. Newton, Health-Officer of Paterson, who has visited several such places, reports: "In one place we find the cat and dog asleep in the kneading-trough, fowls running around and perching on the various utensils, and a general air of filth and lack of thrift. In one shop the kneading-trough was connected with the sewer by means of an untrapped waste-pipe. In another the soil-pipe had burst, and the floor was flooded with liquid filth. The baker said, 'That always happens after a rain-storm.' I have seen a baker mixing his bread with hand and arm covered with the eruption of eczema. He said, 'The doctor told me the dough was good for the disease.' Frequent inspection of such places, as also of dairies, is essential to the public health."

It is barely thirteen years since it was discovered that milk was a potent carrier of infection, yet in a paper read by Ernest Hart, of London, before the International Medical Congress in 1881, it was said that fifty epidemics of typhoid fever, fifteen of scarlatina, and seven of diphtheria had been traced to this source. The total number of cases occurring during these epidemics was 4,800. In one instance reported in the London "Lancet," October, 1883, 220 cases of typhoid fever were traced to a single dairy. Adulteration of milk is confined chiefly to the addition of water, preservatives, alkalies, and to the abstraction of cream. While not directly harmful to health, such adulteration seriously interferes with the nourishment of infants through the impoverishment of the milk, and is believed to be a prime factor in causing the terrible infant mortality in large cities. Harmful results also follow from the use of milk produced from cows fed on distillery-waste, or otherwise improperly cared for, while milk from diseased cows, especially those suffering from tuberculosis, is very dangerous. It is proposed that all milk-dealers and dairies should be registered and kept under constant sanitary supervision.

The latest document on the subject of milk-adulteration in New York city, "Report on

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* A United States Army officer says: "There is hardly a military station in the land where officers and soldiers and their families do not habitually use canned foods; and, as a class, army people are, without doubt, the largest consumers of canned articles, in proportion to their number, of any in the country. In all my army experience (and for many years I have been chief commissary of a military department, and as such had charge of supplying posts with all their subsistence), I have never known or heard of a case of canned-goods poisoning in the army."

Fresh and Condensed Milk," by Charles E. Munsell, Ph. D., says that the daily consumption of milk in the metropolis, in summer, is 500,000 quarts, which retails at from six to ten cents, representing about $35,000 a day, or over $12,000,000 a year. Formerly one fourth water would be added to this supply, so that the money-saving to the public from official regulation can thus be estimated.

As a result of the strict surveillance of the health authorities, it is rare for the inspectors to find sophisticated milk in retail stores. The public, also, are becoming alive to the quality of the supply, and will not be content with poor milk. No fewer than fifty small dealers now sell pure milk at but little above cost (five cents a quart in summer, as an advertisement), and it is believed that many others will do so, which will prove a great boon to the children of the poor in the hot weather.

Meat-inspection in markets is provided for in most large cities; but there is not sufficient surveillance of slaughter-houses and examination of cattle before or immediately after killing to prevent the sale of impure and diseased meat.

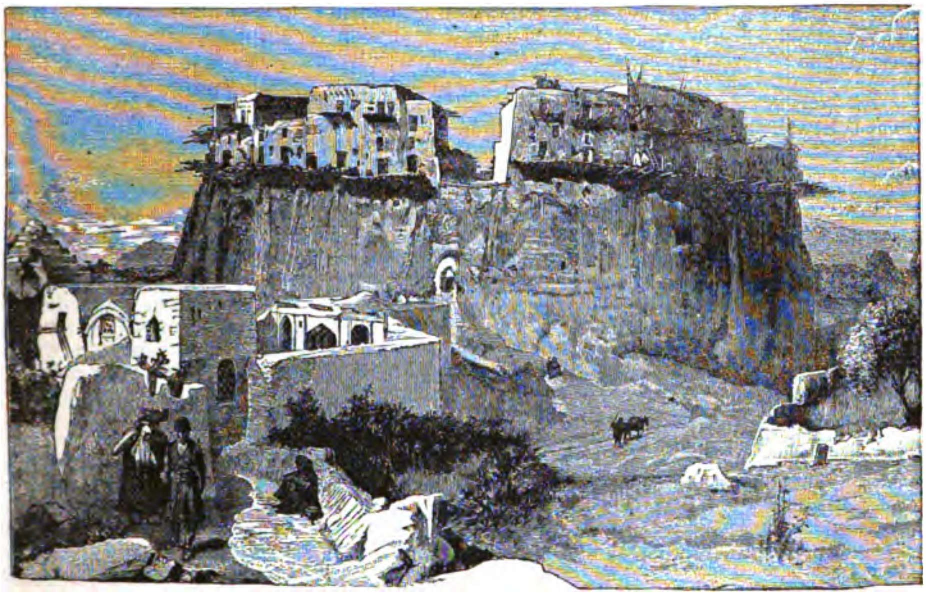
Adulteration of food has only recently become a subject of popular interest and legal action in the United States, though it has been discussed and legislated upon in other countries for a long time. In most European countries, laws have long existed to control the manufacture and sale of food. In England, laws to prevent adulteration were passed in 1860 and 1872. The statute now in force was enacted in 1875, and modified in 1879. The laws in force in the United States were based upon these recent English enactments. In Great Britain, public analysts appointed by local authorities are required to examine a certain number of samples each year, for a stated sum. If these are found to be adulterated, complaint is made to a magistrate, and the offender is prosecuted. The appointment of an analyst is obligatory on the local authorities, but while such appointments are usually made, in many instances no work is allotted, owing to lack of sympathy with the work or to the penuriousness of the authorities. The results obtained, therefore, are not wholly satisfactory. Massachusetts, New York, New Jersey, and other of the older States have long had laws relating to the adulteration of food, and prohibiting the sale of unwholesome meats and provisions, while nearly every State places restrictions upon the weight and other commercial qualities of flour, bacon, lard, salt, etc. In 1879 a prize of $1,000 was offered by the National Board of Trade for the best essay on food-adulteration, and for the best form of a law prohibiting the same. Such a law was drafted, and finally adopted by the Legislatures of New Jersey, New York, and Massachusetts, in 1881–'82. A modification of the same law, adapted to the Territories and other sections of the country under the charge of the General Government, was submitted to Congress in 1883–'84, but failed to pass. An act prohibiting the importation of damaged and adulterated tea was adopted, and has been successfully enforced. The State laws just referred to define what is meant by adulteration in the case of food or drugs, give State boards of health power to exempt certain articles that are recognized as not injurious to health, and authorize them to appoint analysts and inspectors. The time has been too short to test fairly the operation of these acts, and from insufficiency of funds they have not accomplished all the results that might have been expected. Only a few prosecutions have taken place under them, and their validity has not yet been tested before the higher courts. The best authorities seem to agree that adulteration should be treated chiefly from the commercial, rather than from the sanitary stand-point, and that so far as possible the elaborate machinery, inevitable delay, and cost incident upon a large corps of inspectors and analysts, should be saved. Dr. E. R. Squibb, a high authority on the subject, remarks that the chief aim of all legislation in this direction should be to deter persons from attempting the practice of adulteration, rather than to punish them after committing the act. "The motive power of all adulteration is pecuniary profit or gain, and not to endanger or damage health at all. That adulterations do endanger health, is a mere accident. . . . If the penalty be sufficient and sufficiently sure to make the risk of punishment greater than the profit will warrant, the design to adulterate will be abandoned, and the law will have its natural and wholesome success." Simple exposure through the press of persons guilty of adulteration is the most potent means to this end, as has been found in Canada, where greater success has been achieved in checking adulteration than anywhere else.

In Germany a bill for the prevention of adulteration, based on the English enactments, has been passed. A humorous story current in that country illustrates the extent of adulteration there. It is to the effect that three flies feasted, the first on flour, the second on sugar, and the third on fly-poison; and the last was the only one that survived!

AFGHANISTAN, a monarchy in central Asia, occupying a mountainous country between the Oxus and Indus valleys. It is the only remaining territory separating the Russian possessions in Asia from the Indian Empire. The ruler is Abdurrahman Khan, Ameer of Afghanistan, whose residence is at Cabul. He was placed on the throne under the protection of the British Government, after the conquest of the country in the Anglo-Afghan war of 1878–'79, and the abdication of his predecessor, Yakub Khan. The extent and population of Afghanistan can not be determined even by estimates, as there are no fixed boundaries, and many of the outlying tribes, which have at some time been subject to the Ameer of Cabul, are now independent, but may hereafter be compelled to acknowledge allegiance to Abdurrahman; while others are constantly revolting. Even in the center of the country, among the tribes of Afghan blood, the Ameer is unable to exercise effective authority. The social system is tribal and patriarchal, and civil government exists only in a loose, feudal form. The Afghan tribes inhabit the valleys of the Cabul, Helmund, and Argandab rivers, a mountainous region lying between the Hindu Kush and Kohi Baba ranges on the northwest, and the Soliman Mountains on the southeast. The rugged and barren country in the southeastern corner of Afghanistan is sparsely peopled with wild tribes of kindred race. The Afghans follow pastoral and agricultural pursuits, but war is their favorite occupation. The tribes into which they are divided are exceedingly jealous of one another, and frequently engage in internecine strife. They only unite for the conquest and oppression of other peoples. The peaceful races inhabiting the northern slope of the mountains afforded a rich field for conquest. The province of Herat was wrested from the Persians in 1753. Only the threats of England prevented the Shah of Persia from regaining possession of Herat during the first Anglo-Afghan war, in 1838–'42, and again in 1856. The inhabitants of this province, with the exception of the Saryk Tartars, and those of the whole western side of Afghanistan, as far as Ferrah, are of pure Iranian origin. They have degenerated into barbarism to a large extent under the Afghan dominion; yet in many of the tribes, such as the Tadjiks, the Timuris, the Kyzilbashes, and the Parsivans, are still cultivated the habits and traditions of civilization. Though identical in race and language with the Persians, they profess the Sunnite form of Mohammedanism, and therefore are but little attracted toward Persia. They would embrace any alliance, however, and hail any protector, so that they might be delivered from the galling and cruel yoke of the Afghans.

On the northern declivity of the Hindu Kush, the fertile valleys that lead down to the Oxus are peopled by diligent agriculturists and peaceful semi-nomads, mostly Uzbek Turcomans. The Afghan power first penetrated into this region near the end of last century, and reached the left bank of the Oxus about fifty years ago. The Turcomans had a powerful protector against the tyranny and rapacity of the Afghans in the Khan of Bokhara, until the power of the latter was broken by Russia, and Shere Ali was enabled, by subsidies received from England, firmly to establish his dominion along the whole bank of the Oxus. The khanates of Maimene and Andkhoi were never thoroughly subjugated, and rise in revolt at every promising opportunity. In the extreme east the provinces of Rochan and Chignan accept the sovereignty of Cabul only when a military force is sent to occupy the country.

Diplomatic History of the Afghan Question.—The chief political interest attaching to Afghanistan is derived from the fact that Great Britain is striving to preserve it as a neutral zone between India and the advancing power of Russia. About fifty years ago, when Russia was established on the north shore of the Sea of Aral. and first turned her eyes toward Turkistan, Great Britain felt the premonition of danger, and sought to bring the central Asian khanates under English influence and protection, so as to establish a barrier against Russia north of the Oxus. The more skillful strategy and diplomacy of the Russians won this favorable position, and gradually transplanted the power and influence of the Muscovite system, which ends in complete political absorption, across the desert steppes, to the fertile and populous oases of central Asia, thus acquiring a military base within striking distance of Herat, the "Key of India." In 1864, when the Russians occupied Chinakend and threatened Khokand, Prince Gortchakoff, in a circular to the powers, indicated a line between the Aral Sea and Issyk Kul, which was to be fortified and would mark the limit of Russian expansion. The reasons that he gave for the extension of the Russian dominions to that line—that the civilizing mission of Russia in Asia required that the people who had been converted from warlike and predatory habits should be defended, in the pursuit of commerce and agriculture, from the depredations of the tribes that were still addicted to plunder—were partly the cause of transgressing the frontier which it was then thought possible to make secure, but were not sufficient to explain the subjection of Bokhara soon afterward, and the conquest of Khiva in 1873, and of Khokand in 1876. Already in 1866 England contented herself with obtaining Gortchakoff's assurance that the neutrality of Afghanistan should be respected, and with taking care that there should be an Afghanistan, by extending liberal subsidies to Shere Ali, for the purpose of consolidating and maintaining his rule. Shere Ali's faithless proceeding in entering into secret negotiations with Russia, during the conflict over the San Stefano Treaty, convinced the Disraeli Government of the worthlessness of an alliance with the Ameer. The only way to guard the land-route into India, they concluded, was with English troops. The murder of the English mission at Cabul furnished a cause for the invasion and conquest of Afghanistan. They prepared to establish themselves at Candahar and connect it with India by a military railroad. The prodigious cost of the Afghan campaign in blood and treasure, and the continual sacrifices and dangers involved in the maintenance of outposts and communications in the hostile Afghan country, as a provision against the remote and visionary contingency of a Russian invasion of India, cresed dissatisfaction in England and was the chief cause of the downfall of the Disraeli Cabinet.



LASGIRD, A TOWN OF REFUGE ON THE BORDER.

Afghan Policy of the Gladstone Ministry.—The Liberals withdrew the British troops again behind the Bolan and Khyber passes. Mr. Gladstone, in censuring the Oriental policy of his predecessor, went so far as to declare that Russia would be welcome to extend her territory to the Indian frontier, as the neighborhood of a civilized and orderly state would be preferable to that of barbarous tribes. The real policy of the British Government was, however, to re-establish and strengthen the Afghan military power, broken up by the English conquest. Abdurrahman, whom they set up as Ameer, was not selected as a man in whose fidelity the English could confide better than in that of Shere Ali or Yakub Khan, but as a monarch whom the Afghans would probably accept. Trained under Russian influence in Bokhara, he has proved a shrewd, wily, and resolute ruler. After establishing him in power at Cabul and providing him with treasure and weapons, the English gave no sign of control, but left Abdurrahman Khan unembarrassed in his difficult task. As the *protégé* of the English he needed all his craft and energy to gain the allegiance of the Afghan tribes. Thus the subjugated peoples in the north, who had hailed the overthrow of Shere Ali's military power as the deliverance from Afghan tyranny, were brought into subjection by the aid of able lieutenants. Herat was captured by a strategic stroke, and in two or three years the Ameer's authority was restored along the Oxus. Maimene was not reduced until the summer of 1884, when the town was captured by Ishak Khan. When the first supply of money and arms was exhausted, others were sent to enable Abdurrahman to maintain possession of these rebellious northern provinces, and finally, in 1883, the British agreed to pay their ally a subsidy of a lac of rupees (nearly $50,000) a month, out of the Indian exchequer.

When the British placed Abdurrahman in authority in 1880, they concluded a defensive alliance with him of the same nature as those that formerly existed between them and Dost Mohammed and Shere Ali. The Ameer agreed to follow unreservedly the advice of the British Government in regard to his foreign relations. The British Government engaged to aid in repelling unprovoked aggression on his dominions if any foreign power attempted to interfere in Afghanistan.

The reversal of Disraeli's plan of gaining possession of the line of advance from Herat, and asserting an effectual authority over the turbulent Afghans, is still condemned by the Tories in England, and never has met the approval of eminent military and Anglo-Indian authorities. In returning to the former policy of non-interference, coupled with liberal subsidies, in order to produce "a strong, united, and friendly Afghanistan," Gladstone reasons that the Afghans are so jealous, fierce, and formidable a people that no army would be allowed to advance peaceably through their country, or could spare the force necessary to maintain a line of transport against their attacks. A Russian advance upon India through Afghanistan has been the bugbear of the English for fifty years. An actual struggle between the two powers for the possession of India is not now considered possible. Prince Bismarck illustrates its absurdity by the metaphor of a battle between a wolf and a fish, meaning that India's outlets and points of defense are all by sea, and therefore beyond the reach of a land power like Russia. Moreover, against Russia Great Britain could count on a larger measure of loyalty in India than they can ordinarily attract, and also upon the effective support of Europe. But a "diversion" in India, in the event of Russian complications or hostilities with Great Britain, was actually undertaken in the diplomatic contest following the Russo-Turkish War, and is felt on both sides to be an important strategic factor and a telling diplomatic weapon. Because the English have been able neither to cow nor to conciliate the Afghans, they do not suppose that the Russians would find them intractable. The dangers of the immediate proximity of the Northern Colossus to the English rule in India are appreciated even by the Liberals. However well disposed, the Russians would suggest hopes, particularly among the Mohammedans of the northwest, of deliverance from the British *Raj*; and with disaffection rife throughout India, as at present, the difficulties of government, at least by present methods, would be greatly enhanced. For this reason the British Government still aims to preserve the integrity and power of Afghanistan as a buffer between the two empires. The recent advances of Russia in the direction of Herat have stirred the English Cabinet from their repose.

Fresh Russian Annexations.—In 1883 Merv made its submission to the Czar. In the spring of 1884 a Russian force occupied and fortified the old strategic point of Sarakhs on the Heri Rud River, within 110 miles of Herat. About the same time the Saryk Tartars, who possess the stronghold of Penjdeh, still nearer Herat, and within its natural line of defense, were taken under the protection of the White Czar by Prince Dondoukoff-Korsakoff at Askabad, April 20th (see RUSSIA). These annexations bring Russia to the confines of the territory defined in the convention of 1873 between Great Britain and Russia as belonging to Afghanistan. In this the districts of Akcha, Sir-i-Pul, Maimene, Shibergan, and Andkoi are declared to be Afghan, though no topographical features are indicated as marking the frontier line.

British Action.—This latest advance of Russia roused the British Government to unwonted activity. First, an armed exploring expedition under Col. Stewart was sent into Baluchistan, in order to assert more effectually British authority in that country. The administration of the district of Quetta, which formed part of the dominions of the Khan of Kelat, was assumed by the Indian Government. It was decided to continue the military railway from Sibi to Quetta. Sir Robert Sandeman was placed in charge of the government, with his residence at Quetta. His administrative district comprises Quetta, Sibi, Pishin, and Thall-Chotiali.

Anglo-Russian Afghan Frontier Commission.—After the Russian annexation of Merv, the court of St. James entered into correspondence with the St. Petersburg authorities with reference to obtaining a technical understanding of the Afghan boundaries, which were guaranteed by treaty against Russian encroachments. After a protracted discussion the British Government agreed in the summer of 1884 to a basis of delimitation, which recognized the latest Russian acquisitions, and accepted the proposition of the Russian Government to appoint a mixed commission for the demarkation of the northern frontier of Afghanistan. The general terms of the agreement were, that the river Oxus should form the boundary between eastern Afghanistan and Bokhara, and that where the line leaves the river at Khoja Saleh it should proceed south and west, taking a circular course along the margin of the desert, and terminating on the Heri Rud river at Phuli Khatum.

In carrying out this plan, the English were embarrassed by annoying difficulties at the start, owing to their peculiar relations with their subsidized allies. It was found impracticable to convoy their commissioners through Afghanistan with a large British military force, although they expected to meet their colleagues attended by a guard sufficient not only to prevent attack, but to inspire the native population with respect for the military power of England. The Ameer was then asked to provide them with an Afghan guard; but this he refused to do. They next appealed to him to guarantee the safety of the expedition. He represented himself as unable to promise security from the attacks of the Durani Afghans of Zamindawar, if they took the direct Candahar-Girishk-Herat route. They were obliged therefore to creep around the edge of Afghanistan by the circuitous Mushki route through the desert to the Helmund. The Anglo-Indian Commission was not ready to start from Quetta before September. The head of the commission is Sir Peter Lumsden. The Indian contingent was attended by a picked guard of native Indian troops, consisting of 200 cavalry and 250 infantry, with armed followers enough to make a total force of 1,200 or 1,300. The party numbered eighteen officers and civilians. The commanding officer was Lieut.-Col. J. West Ridgeway.

The Quetta Railway.—The British Government, in the spring of 1884, authorized the immediate extension to Quetta of the strategic railroad, built during the Afghan war, in the direction of the Bolan Pass, as far as Sibi. It was the intention to carry the road through as soon as it could be built, to Candahar, when, on the accession of the Liberals, the works were stopped at Rindli, twenty miles from Sibi. The Harnai Pass was subsequently chosen in preference to the Bolan Pass, as the route of the projected railroad. When the Sibi-

Quetta continuation was determined upon, an immense number of laborers were set at work in the Harnai Valley, with the intention of finishing it in one season.

Zhob Valley Expedition.—On the pretext of guarding the railroad works and assisting in the construction, a large military force was massed upon the Afghan border. The real object was probably to impress the Afghans with the power of Great Britain, and thus insure the safety of the frontier commission, or, in case of Afghan treachery, to anticipate any action of Russia, and march at once into Afghanistan. The raids of a robber chief on the railroad works gave occasion for a further display of military power. After the departure of the boundary commission, a column of about six thousand choice Indian and European troops, under Brig.-Gen. Tanner, advanced into southern Afghanistan to chastise the marauders. The chief offender was Shah Jehan, head of the Sarun tribe of Kakar Pathans, inhabiting the Zhob Valley, a fertile mountain district, about one hundred miles long and twenty broad. There are seven Kakar tribes, all claiming descent from the family of Saul, the Jewish king. Their facial type is clearly Semitic. The Saruns, under their arrogant chief, who boasts the proud title of King of the World, are at war with all their neighbors, and have repeatedly provoked and defied the English. The punitive expedition set out about the beginning of October. Sir Robert Sandeman accompanied it as the political representative of the British power. Shah Jehan sent a message offering his submission, but it was only a *ruse* to gain time; for Sir R. Sandeman's messenger bringing the required assurances was insulted and barely escaped with his life. The tribes of the Bori Valley, after offering resistance, surrendered. The Hemzedai Kakars made friends with the invaders, but the Muskheyls and Kiligais, after sending conciliatory messages, refused to make terms. When the column entered the Zhob Valley, Shah Jehan retired to a strong position, two days' march from Akhtarzai, prepared to resist the British troops with a few hundred of his stanchest followers.

The watch-towers and towers of refuge form a peculiar feature of the landscapes on the borders of Persia and Afghanistan. These were built as a defense against the raids of the Turkomans, who until recently were in the habit of sweeping down suddenly upon people at work in the fields, and carrying them off for slaves. One of the strongest is Lasgird, shown in the engraving. It is a fortress, about two hundred yards in diameter, with very thick walls, mainly of earth. It has vaults of brick-work, and over them are brick stables and dwellings, with balconies made of stumps of trees overlaid with branches and floored with dry mud. There were strong stone doors and other means of protection. The pyramidal structure at the left of the picture is the village well.

ALABAMA. State Government.—The following were the State officers during the year: Governor, Edward A. O'Neal, Democrat; Secretary of State, Ellis Phelan; Treasurer, Frederick H. Smith; Auditor, Jesse M. Carmichael; Attorney-General, Henry C. Tompkins; Superintendent of Education, Henry C. Armstrong. Judiciary, Supreme Court—Chief-Justice, Robert C. Brickell; Associate Justices, George W. Stone and H. M. Somerville.

Coal and Iron.—In 1872 Alabama mined only 10,000 tons of coal. In 1879 this had increased to 290,000 tons. In 1880 about 400,000 tons were mined, and in 1884 it was estimated that the output would reach 1,000,000 tons. The demand is constantly ahead of the supply.

The markets of Mobile, New Orleans, and Texas are using Alabama coal, and its use is steadily increasing at all of the Gulf ports; and in the interior of the cotton States, in the small towns and on the plantations, where wood has been the sole fuel, coal is now sold at low prices. In Alabama there are seven distinct kinds of coal, all bituminous. Alabama has cannel-coal within its borders; large free-burning lump-coal; coking and gas coals in abundance; and coals that for steam purposes are equal to the celebrated Cumberland, or to the best Scotch coals.

The product of iron and steel in Alabama in 1870 amounted to 7,060 tons; in 1880, to 62,986 tons; and in 1883, to 125,000 tons.

Lumber.—In 1880 it was estimated that there were 15,000,000,000 feet of long-leaf pine timber standing in Alabama. The lumber industry in the section of the pine belt west of the Escambia river shows a healthy and steady increase during the past ten or twelve years, which is strikingly manifest in reference to the export of hewn square timber, as is shown by the following exhibit of the production from the year 1880 to the close of the present business year:

	Lumber.	Sawn timber.	Hewn timber.
	Board measure.	Cubic feet.	Cubic feet.
1880	16,572,328	223,075	524,932
1881	18,168,350	371,910	1,364,900
1882	32,286,137	336,512	1,338,087
1883	26,758,000	484,398	1,164,706

Of shingles, mostly cypress, an average of 8,500,000 are produced every year. A considerable quantity of timber from the western confines of the pine region in this State finds its way by the Esquatawba river to the mills at Pascagoula. Shipments of square timber from the upper part of this district are made northward by the railroads. Its whole production in lumber and timber does not fall short of 60,000,000 feet, board measure. The forests fronting Mobile bay have in a great measure been destroyed by the production of naval stores. Not less than 600,000 acres of fine timber-lands have been given over to destruction by the methods followed in the prosecution of that industry during the twenty-five years previous to 1880, in the counties of Mobile and Baldwin, and more recently on the lands of the pine belt contiguous to the Mobile and Ohio Railroad. An equal area will be subjected to the same devastation within the next five or six years.

The belt of long-leaf pine traversing the center of Alabama from its eastern limits to near its western borders, extends over 550 or 600 square miles. By numerous measurements it was ascertained to average fully 5,000 feet to the acre. The amount of timber standing has been estimated at 1,750,000,000 feet, board measure.

The lumber business is most actively carried on along the North and South division of the Louisville and Nashville Railroad in Chilton and Autauga counties. Eighteen million feet, board measure, were shipped in 1880 from the mills of one company to Northern markets; and 50,000,000 feet can be taken as the annual average product of the mills along the above-named railroad line. To these must be added the 24,000,000 feet produced by the mills along the Selma, Rome, and Dalton Railroad, bringing the annual products of this interior timber belt to 92,000,000 feet. In view of these facts, and the estimated amount of timber standing, its timber supplies will be exhausted in less than a quarter of a century from 1880. The less extensive pine-forests in the interior of Alabama, fronting Coosa river, and the detached patch in Walker county, bear a timber growth equal to any in the State, which has been estimated to add another 1,080,000,000 feet to its timber wealth.

Cotton-Factories.—On June 1, 1880, Alabama had 55,072 spindles and 1,060 looms in operation; on Jan. 1, 1884, 82,057 spindles and 1,614 looms.

Education.—The latest report of the Superintendent of Education covers the year ending Sept. 30, 1883. The amount of the public school fund for the year was $418,006.22, of which $136,733.12 consisted of the poll-tax collected and retained in the counties, $130,000 was the annual legislative appropriation, and the balance consisted of the income of investments and unexpended balances. Of the total, $263,652.47 was apportioned to cities and counties. The expenditures during the year were as follow:

Amount paid to teachers of white schools	$252,789 58
Amount paid to teachers of colored schools	167,897 97
Amount of salaries of county and city superintendents	12,228 87
Amount paid to normal schools	15,500 00
Amount of contingent expenses	631 18
Total	$448,497 50

The foregoing statement of expenditures includes $31,671.66, derived from local sources in Mobile county and city.

SUMMARY OF STATISTICS.

Number of children enumerated, white	225,043
Number of children enumerated, colored	178,858
Total	403,901
Number of pupils enrolled in white schools	120,098
Number of pupils enrolled in colored schools	80,420
Total	200,518
Average daily attendance in white schools	73,873
Average daily attendance in colored schools	53,143
Total	127,016
Total number of teachers employed	4,717
Average monthly pay of teachers in white schools	$22 70
Average monthly pay of teachers in colored schools	22 10
Average duration of white schools, in days	81·2
Average duration of colored schools, in days	69·3
Amount expended in 1883	$448,497 50
Amount expended in 1882	403,601 98
Increase	$44,895 52
Number of pupils enrolled in schools, 1883	200,518
Number of pupils enrolled in schools, 1882	177,428
Increase	23,085

The public schools of the cities of Birmingham, Eufaula, Huntsville, Montgomery, and Selma are mainly supported by local appropriations. The normal schools are at Florence, Marion, Huntsville, and Tuskegee. The Legislature at its late session established two additional ones for the education of white teachers, with an annual appropriation to each of $2,500. One of these is to be at Jacksonville, the other at Livingston. The Legislature, at its late session, having increased the annual appropriation for the support of the public schools $100,000, the total fund for the year 1883–'84 is estimated at $510,000.

Political.—The Democratic State Convention met in Montgomery on the 4th of June, and nominated the following ticket:

For Governor, Edward A. O'Neal; for Secretary of State, Ellis Phelan; State Treasurer, Fred H. Smith; Auditor, M. C. Burke; Attorney-General, Thomas N. McClellan; Superintendent of Education, Solomon Palmer.

The platform adopted contained the following:

> Ten years ago, with a tax rate of 7½ mills, there was produced only about $800,000 of revenue, and the expenses of government were about $1,500,000; while now, with a rate of 6½ mills, we have raised and expended for the past year about $1,100,000, and the result is that notwithstanding the large amount lost by the late State Treasurer's default, there is now in the Treasury a larger amount, over and above liabilities, than at any previous time in the State's history.
>
> The management of the State convicts, a most troublesome and difficult matter theoretically and practically, though new and imperfect in some respects, is approaching a solution in a manner consonant with the humane ideas of the age; at the same time that justice is done to the guilty, the State's financial interest guarded, and the health and comfort of convicts being now carefully protected.

The Republican State Convention was held in Montgomery on the 15th of April. Delegates to the Republican National Convention to be held in Chicago were chosen, and presidential electors were nominated. The platform contained the following:

> We demand in the interest of home labor and the development of the vast wealth of Alabama in iron-ore, coal, and other minerals, as well as for the encouragement of all our now growing and progressive industries, and to afford the farmer a market at his

> door for all his products, that customs duties, laid for the proper expenses of the national Government, shall be distributed with a view to the protection of and fostering of all these great interests, and to the end that we may continue to pay our labor, as now, more than double the prices paid in England and other foreign countries.
>
> We denounce the present convict system of Alabama, inaugurated by a Democratic administration, as an outrage on humanity, a disgrace to any civilized State, as degrading to honest labor, as tending to reduce the laboring-classes to a competition with penitentiary convicts, and as tending to impede immigration to our great State.

The election on the 4th of August resulted in the choice of Democratic State officers and a Democratic Legislature, substantially without opposition. On the 4th of November Democratic Congressmen and presidential electors were chosen by large majorities.

Finances.—During the past two years unusual efforts have been made toward the collection of the various items of revenue. Of taxes due on former years, there was collected in the year ending Sept. 30, 1883, $33,180.77, and in the year ending Sept. 30, 1884, $28,390.84, while the aggregate of balances against tax-collectors at the latter date was only $25,039.33, nearly all of which is in suit. In the two years, the total receipts at the treasury, from the owners of the Alabama and Chattanooga Railroad lands, from the sureties and the estate of the late treasurer, and from back taxes, were $114,910.59. The balance in the treasury to the credit of the general fund on Sept. 30, 1884, was $134,518.38. The receipts from all sources during the first quarter of the present fiscal year (to Dec. 31, 1884) may reach $150,000. The current expenses of the government for this period, including the cost of the current legislative session, are not over-estimated at $120,000; and the January (1885) interest on the bonded debt, to be provided and set apart by December 31st, is $160,200. The act of Feb. 23, 1883, "to levy and collect taxes for the use of this State and the counties thereof," which reduced the rate of taxation from sixty-five cents on the hundred dollars to fifty-five cents, was declared void by the Supreme Court, because of an error in its enrollment. Last year, when the act would have been in force, the total receipts at the treasury from taxes on property (including payments made by collectors on school warrants) were $925,385.42. At fifty-five cents on the hundred dollars, the receipts, on the same assessments, would have been $783,018.11. The difference, $142,367.31, is greater than the treasury balance at the close of the year by $7,948.93. Every effort to find the defaulting and fugitive State Treasurer, Isaac H. Vincent, has failed. The State will realize from his property and sureties but a small percentage of its loss.

The Penitentiary.—Says the Governor: "The penitentiary was intended for a penal and reformatory prison. The welfare of the convict was considered in connection with the protection of society by his punishment. It took the place of the gallows and whipping-post for many offenses. But its humane purpose was soon neglected. Convicts, left to the unrestrained control of lessees and contractors, were overworked, insufficiently fed, badly clothed, and beaten with stripes. They sickened and died in great numbers. In one year the death-rate was two hundred and fifty in the thousand. The prison was maintained from the first at heavy cost. Until 1878 it was an expense to the State every year. Since 1878 it has yielded a net profit, increasing from year to year. In 1883 it paid into the treasury a net sum of $19,198.80, and in 1884 of $17,197.78; exclusive, in both years, of payments to officers and inspectors from the treasury. Since Sept. 30, 1884, an additional payment into the treasury has been made of $15,890.01. Until within a few years, little effort appears to have been made to secure to convicts the humane treatment prescribed by law, and until 1882 no report of any officer of the penitentiary told of the constant and utter disregard of all legal regulations for their benefit and protection. The reports of the warden and the inspectors two years ago disclosed a condition of affairs so deplorable that the Legislature at once undertook to correct and mitigate it by the act of Feb. 22, 1883, the result of which has been an improvement in the treatment and condition of the convicts, while the profits from their labor have increased. There were in the penitentiary, Sept. 30, 1884, 527 convicts, of whom 349 were at Pratt Mines, 63 at the quarries at Blount Springs, and 86 on Williams's plantations."

Education.—In the fifty-one counties from which reports have been made, a greater number of schools have been taught for longer time and by better teachers than heretofore. The superintendent makes a number of recommendations, the more important of which are: 1. That counties, cities, townships, and separate school districts be authorized, by a vote of the qualified electors, to levy and collect a school-tax; 2. That the salaries of county superintendents be increased; 3. That all money for the schools, except the poll-tax, be paid from the State treasury, and none by collectors upon the Auditor's warrants; 4. That section 983 of the code be so amended as to authorize the sale of sixteenth-section lands for cash; and, 5. That appropriations for certain normal schools be increased.

Agriculture.—The Agricultural Department went into operation on Sept. 1, 1883, under the direction of E. C. Betts, of Madison County, who had been appointed commissioner.

Hospital for the Insane.—The enlargement of the Hospital for the Insane, for which $100,000 was appropriated Feb. 26, 1881, has been completed in the addition of two wings, each three stories high. The entire building is of brick, and as nearly fire-proof as possible. It is lighted by gas made on the premises and is heated by steam. It is abundantly supplied with hot and cold water, and is fitted with baths and closets of the most improved kind. The steam-pressed brick of the new wing were made in the yards of the hospital; and the bedsteads, tables, seats, and other furniture needed, were manufactured in its own shops. The hospital now has accommodation for 750 patients. Since Sept. 30, 1882, 455 patients have been admitted and 242 have been discharged. On Sept. 30, 1884, the number of patients was 630, of whom 539 were white and 91 were colored. Of the aggregate, 589 were indigent, and 41 were paying patients. In the year ending Sept. 30, 1883, the hospital received from the State $71,344, and in the year ending September 30th last, $78,789.75.

Deaf and Dumb and Blind Asylum.—In the Institution for the Deaf and Dumb and the Blind at Talladega, 106 pupils have been enrolled, and the average attendance has been 83. Of the whole number enrolled, 72 are deaf-mutes, and 34 are blind. The cost of maintenance, for the year ending Sept. 30, 1884, was $16,269.54; or, $203.36 for each pupil.

Supreme Court.—On October 25th, Chief-Justice Brickell resigned, and the Governor appointed Associate Justice Stone in his place. David Clopton was appointed Associate Justice.

November Election.—The result of the November election, as officially declared, was as follows: for Cleveland electors, 92,973; Blaine, 59,444; Butler, 762; St. John, 610. Eight Democratic Congressmen were declared elected.

Legislative Session.—The Legislature met on November 11th, and was in session at the close of the year. On the 25th, James L. Pugh, Democrat, was re-elected United States Senator by a nearly unanimous vote.

ALASKA. An act of Congress passed May 17, 1884, provides that the territory that was ceded to the United States by Russia, by the treaty of March 30, 1867, now known as Alaska, shall constitute a civil and judicial district, of which the temporary seat of government shall be Sitka. A Governor, District Judge, Clerk of the District Court, District Attorney, and Marshal, are provided for. There are to be at least two terms of the District Court each year, one at Sitka and the other at Wrangel. The clerk is *ex-officio* secretary and treasurer of the district, recorder of deeds, mortgages, etc., and register of wills. He is required to establish record offices in Sitka and Wrangel, and the District Court may also establish such offices at Oonalashka and Juneau City, if it shall deem it expedient. Four commissioners are appointed, residing, one at Sitka, one at Wrangel, one at Oonalashka, and one at Juneau City, who, besides the powers and jurisdiction of Commissioners of the United States Circuit Courts, exercise the duties and powers, civil and criminal, now conferred on justices of the peace under the general laws of the State of Oregon, so far as applicable. They also have testamentary and probate jurisdiction, subject to the supervision of the district judge, and the powers of notaries public. The marshal appoints four deputies for the above-named localities respectively, who are *ex-officio* constables. The general laws of Oregon in force at the passage of the act are declared to be the law of the district, so far as the same may be applicable and not in conflict with this act or the laws of the United States. Alaska is created a land district, Sitka being the land-office, and the commissioner resident there *ex-officio* register thereof. The above-mentioned officers, except deputy-marshals, are appointed by the President, with the advice and consent of the Senate, for four years. The Governor and judge receive an annual salary each of $3,000; the attorney, marshal, and clerk, of $2,500. J. H. Kinkead has been appointed Governor.

The Secretary of the Interior is required to make needful and proper provision for the education of the children of school age in Alaska, without reference to race, until permanent provision shall be made therefor, and $25,000 is appropriated by the act for that purpose. Other acts of 1884 appropriated the following sums: For the support and education of Indian children at industrial schools, $15,000; for expenses of government, $24,000; for compiling laws for the guidance of officials, $500; and for supervision of the seal-fisheries, $28,350.

ANGLICAN CHURCHES. The Church of England has enjoyed a year of relative quiet. The exciting controversies that disturbed its life during many previous years appear to have subsided for a time. The most notable event in the ritualistic controversy, and almost the only one that attracted general attention, was the decision of the High Court of Justice sustaining the Bishop of Manchester in refusing to appoint the candidate named by the patron to the incumbency of Miles Platting, except upon a pledge that he would not repeat the ritual offenses for which his predecessor was subjected to discipline. Attention has been given to the report of the Ecclesiastical Courts Commission, proposing a reform in the organization of the Ecclesiastical Courts, particularly to the clauses constituting a Court of Appeal composed partly of laymen; and the questions relating to this subject have been themes of discussion in the meetings of representative bodies, and in the published expressions of men whose opinions are supposed to be influential.

The Church Missionary Society.—The annual meeting of the Church Missionary Society was held in London, May 6th. The Earl of Chichester presided. The total income of the society for the year had been £232,448.

The Society for the Propagation of the Gospel.—The one hundred and eighty-third anniversary of the Society for the Propagation of the Gospel in Foreign Parts was held June 17th, under the presidency of the Archbishop of Canterbury. The report stated that the gross income of the society for the year had been £109,572, the largest sum it had ever raised in the same time. The remittances for foreign parts had been increased by nearly 20 per cent. An examination of the society's records lately made showed that it had expended on the foundation and development of the church in Australia, £225,850; in Africa, £512,704; in British North America, £1,627,601; in the West Indies, £571,726; in New Zealand and the Pacific, £97,301; in Asia, £1,582,486; and in Europe, £82,505. The number of ordained missionaries on the society's lists was now 520.

The Church Pastoral Aid Society.—The forty-eighth meeting of the Church Pastoral Aid Society was held May 8th. The Earl of Shaftesbury presided. The ordinary income of the society for the year had been £54,688. During the past ten years it had contributed £84,000 toward ministerial work in the poorer parishes of the metropolis, employing on an average seventy curates and thirty-six lay agents yearly.

The Church Army.—The "Church Army" is an institution that has been organized to operate, on the plan of the Salvation Army, among the great masses of the people "who are outside of all religion." Its first great meeting was held May 28th, under the presidency of the Bishop of Oxford. A report was read by the Rev. W. Carlisle, giving a sketch of the rise of the organization. It had started about two years before, almost simultaneously at Richmond, Oxford, Bristol, Tunbridge, and Kensington. It had now a general organization, but worked in districts under the guidance of the local clergy. It was now the largest part of the lay department of the Church Parochial Mission Society, and had the patronage of many of the bishops. It had fifty-nine stations, fifty of which were in active operation, in addition to which Church Army missions had been conducted, and more than three thousand adult converts had been confirmed. A training-house had been established at Oxford in October, 1883, at which thirty-nine officers were under instruction. The work of the Church Army had been carried on with small expenditure, and the poor themselves had subscribed to keep the stations open. The chairman, the Bishop of Oxford, made an address, commending the enterprise.

The Liberation Society.—The annual meeting of the Society for the Liberation of Religion from the Patronage and Control of the State, was held in London, May 7th. The report of the Council stated that the income of the society for the year had been £8,898, and its expenditures £8,541. The report also reviewed the progress that had been made during the year toward the accomplishment of the object that the society is trying to promote. It set forth that, as the Government had prepared, and would, if practicable, introduce a bill still further to amend the burial laws, it was hoped that it would be unnecessary to proceed with Mr. Richard's Cemeteries Bill. The Government had acceded to the request of the Executive Committee of the society in appointing a Nonconformist as one of the Charity Commissioners; and a Select Committee on the operation of the Charitable Trusts Acts had been appointed, whose inquiry the society's friends were urged to assist in making complete and effective. The report of the Royal Commission on Ecclesiastical Courts was criticised as showing that the members of the Establishment were indulging in dreams of obtaining spiritual independence without relinquishing the favors of the state; whereas, it was declared, freedom could only be obtained by the abandonment of privilege. Resolutions were adopted condemning the recommendations of the Royal Commission on Ecclesiastical Courts; concurring in the motions of which notice had been given by Mr. Richard, Mr. Dillwyn, and Mr. Peddie, for the disestablishment of the Church in England, Wales, and Scotland, respectively; expressing satisfaction at the result of Mr. Willis's motion for the removal of the bishops from the House of Lords; and urging the extension of the efforts of the society among the rural population, in view of the enfranchisement of the agricultural laborers.

The Ritualistic Controversy.—Baron Pollock delivered judgment, January 22d, in the Queen's Bench division of the High Court of Justice in the action of *quare impedit*, brought by Sir Percival Heywood against the Bishop of Manchester, for refusing to institute Mr. Cowgill to the living of Miles Platting. The justice recited the facts of the case, which were not disputed, stating that the bishop had assigned as his reason for not instituting Mr. Cowgill, that that clergyman had, as curate of Miles Platting, committed various breaches of law, for which he might have been subjected to ecclesiastical censure; that he did not think it right to run the risk of Mr. Cowgill's repeating those offenses as incumbent, and had therefore sought an interview with him, and asked a series of written questions, the intention of which was to ascertain whether Mr. Cowgill would desist from those breaches of the law if instituted to the living; and that the result of the interview was to assure the bishop that it was exceedingly unlikely that he would so desist. This, Baron Pollock regarded as a legitimate exercise of the discretion confided to the bishop to refuse to institute an incumbent whom he could reasonably and lawfully regard as unfit for the office. Baron Pollock did not hold that the bishop was in any way obliged to refuse institution to Mr. Cowgill. He intimated that if the bishop had chosen to regard the ritual offenses committed under another incumbent as insufficient grounds for assuming that they would be repeated by Mr. Cowgill as incumbent, he might in his discretion have done so; but that he had a discretion in the matter, and that he had exercised that discretion on grounds that the law would hold to be sufficient. He therefore gave judgment for the defendant, the Bishop of Manchester, with costs against Sir Percival Heywood.

Baron Pollock pointed out that Mr. Cowgill had virtually been deprived of his living for acts which, if they had been brought before an ecclesiastical court, would not, in the first instance at least, according to recent usage, have involved deprivation, but only a monition to abstain from them. He also implied that Mr. Cowgill's mere refusal to answer the bishop's questions could not have been made a lawful ground for refusing to institute him; but that the true ground was his persistent breach, as curate, of the ecclesiastical law as laid down in the recent judgments of the Court of Appeal, and the presumption so set up that he would continue in the same course of conduct. On this view, the questioning was regarded only as opening up to the bishop a chance of escape from the assumed duty of refusing to institute Mr. Cowgill, and not as constituting the ground of refusal.

The Convocation of Canterbury.—The Convocation of Canterbury met February 13th for the dispatch of business. Protests were presented against the projected organization of the "Church of England Middle-Class School Company," which proposed to adopt the conscience clause of the Education Act, under which any person can withdraw his child from the religious instruction of the school. The contemplated adoption of the conscience clause was condemned in the Lower House. The archbishop, in bringing before the Upper House the report of the Ecclesiastical Courts Commission, advised careful deliberation in considering it, suggesting that the first opinions on the subject were not likely to be the final ones, and advised that the House await the action of the Committee on the Relations of Church and State of the Lower House, upon whom it would fall to act as the advisers of Convocation. The Committee of the Lower House on this subject reported the results of a conference it had had with the Committee of the Convocation of York, and submitted several recommendations, several of which were of a technical character. One of the recommendations says that "in accordance with the constitution of the church and realm, the right of appeal for the maintenance of justice in all ecclesiastical cases lies to the Crown"; but the committee, while fully accepting the principle laid down by the commissioners, that "the function of such lay judges as may be appointed by the Crown to determine appeals is not in any case to determine what is the doctrine or ritual of the Church," feared that their recommendations failed to give sufficient security for carrying this principle into effect; and they were convinced that any attempt to settle questions of doctrine or ritual by such lay judges in possible opposition to the determination of the spirituality would lead to results dangerous to the truth and to the best interests of the Church and realm. In the Upper House, a petition was presented from army officers on the subject of making more liberal provision for the instruction of soldiers, who, it was urged, were by their training and discipline particularly amenable to religious influences, and might, after the expiration of their term of service, become useful to the Church among the classes from which the army is recruited. The Convocation of York was asked to appoint a committee, for the joint action of the two provinces, on the subject of "the spiritual need of the masses." A report was made recommending that the Church should accept the services of a class of persons to be called "readers" and "assistant readers," who should expound the Scriptures to the best of their ability, and read such part of the service as "can with propriety be read by a layman," or other approved service, in unconsecrated buildings, or, after the services of the day, in consecrated buildings.

The Houses of Convocation met again, May 18th. The Bishop of Lincoln, in the Upper House, called attention to the subject of the translation of the Book of Common Prayer into foreign languages, and urged that, in view of the extensive character of the missions of the English Church, it was important that such translations should be authorized only when they had been made in conformity with the principles of the Lambeth Conference of 1878, when resolutions were approved declaring that "authority" should not be affixed to translations unless they were approved first by a local board, and then by a general board. The archbishop showed that the rules of the Christian Knowledge Society provided for all translations being made honest and true. The Archbishop of Canterbury was made responsible, directly or indirectly, for the translations of the Scriptures and of the Book of Common Prayer, and he had to appoint the committees who translated, by whom every care was taken. The resolution of the Bishop of Lincoln was ultimately withdrawn. The subject of providing measures by which the Church could be saved from scandals like one which had recently occurred, where a clergyman just released from penal servitude for a heinous crime had been enabled to appear in the pulpit as a *locum tenens*, or occasional supply, was referred to a committee. In response to a *gravamen* from the Lower House, a committee was appointed to consider the subject of procuring a church house for the province, in which the Convocation might meet. The bishops were requested to inquire into the matter of complaints that had arisen, that in some instances church people had been buried in the unconsecrated parts of cemeteries because the fees in the consecrated portions were exceedingly high. The House omitted, from the regulations it had adopted concerning the appointment and employment of lay readers, the provision allowing the readers to conduct a simple service of hymns, prayers, and an address in consecrated buildings, at times when the regular services are not held.

The attention of the Lower House was given to the discussion of the relations of church and state as presented in the report of the committee on that subject. The following resolutions, embodying the action of the present and of the previous sessions, were adopted or reaffirmed:

That having regard to the necessity for strengthening the paternal authority of the bishops, this House recommends that the usual steps be taken by convocation for applying for the royal license to enact such canons as may be found necessary for supplying the means of direction and arbitration on doubtful points of ritual without resort to litigation.

That this House deems it indispensable to any effective exercise of the domestic jurisdiction of the bishop, that he should retain his present control over the commencement of proceedings in court; and agrees with the commissioners that the bishop's control being retained, it is undesirable to restrain the general power of complaint.

That this House approves generally of the recommendations of the commissioners with regard to the Provincial Court, but is of opinion that, in cases regarding misconduct and neglect of duty, if the judgment of the Diocesan Court (or of the Provincial Court if the case be first heard in that court) be in favor of the defendant, or in cases regarding ritual and doctrine, if the judgment of both the Diocesan and Provincial Courts be in his favor, no further proceedings shall be taken.

The House approved generally of the recommendation of the commissioners in section 3 of their report, that in accordance with the constitution of the church and realm, the right of appeal for the maintenance of justice in all ecclesiastical cases lies to the Crown, but declared that it "can not acquiesce in the principle of a final settlement of questions involving doctrine or ritual by a lay court, which is not bound in all cases to consult the spirituality (defined as meaning the 'Upper House of the two Convocations, assisted, if they think fit, by learned divines of the Church of England'). And this House is further of opinion that a decision in respect of such questions, which had not received the sanction of her spiritual authorities, could not be regarded as the voice of the Church."

That this House approves of the recommendation, that when on appeal to the Crown the judgment of the Church Court is to be varied, the cause should be remitted to the court the judgment of which is appealed against, in order that justice may be done therein according to the order of the Crown.

The Houses met again July 1st. The Bishop of Ohio was present, having come to England on the invitation of the Society for the Propagation of the Gospel in Foreign Parts, to deliver the sermon on the hundredth anniversary of the American Episcopate, and took the occasion to present to the body the Act of all the Bishops of the Protestant Episcopal Church, or list of all those who had been consecrated bishops since the beginning of that church; the first act of the kind that had been presented since the days of Bishop Seabury. The resolutions that had been passed by the Lower House on the report of the Ecclesiastical Courts Commission were amended. As adopted by the Upper House, the sixth resolution (the second of those given above) was made to read: "This House deems it indispensable to any effective exercise of the jurisdiction of the bishop, that he should retain his present prescribed control over the commencement of proceedings in court; and that in the case of appeal to the Crown for the maintenance of justice in questions involving doctrine or ritual it is desirable that the opinion of the bishops of the province in which the case arises, or, if it be thought advisable, of both provinces, shall be required in the specific points of doctrine or ritual which are involved, and that such opinion of the said bishops should be made public." The report of a committee on the subject of forming a House of Laymen to advise or confer with the Convocation was affirmed. It contemplated that the members of such House should be appointed by the diocesan conferences of the province, the diocese of London sending ten members, the dioceses of Winchester and Rochester six each, and each of the other dioceses sending four members, while the archbishop should have the right to appoint ten members; and that its sessions should be convened and opened by the archbishop, to whom also should be submitted for approval the name of the elected chairman. Rules were laid down for the guidance of the House of Laymen, and defining its relations with the other Houses of Convocation.

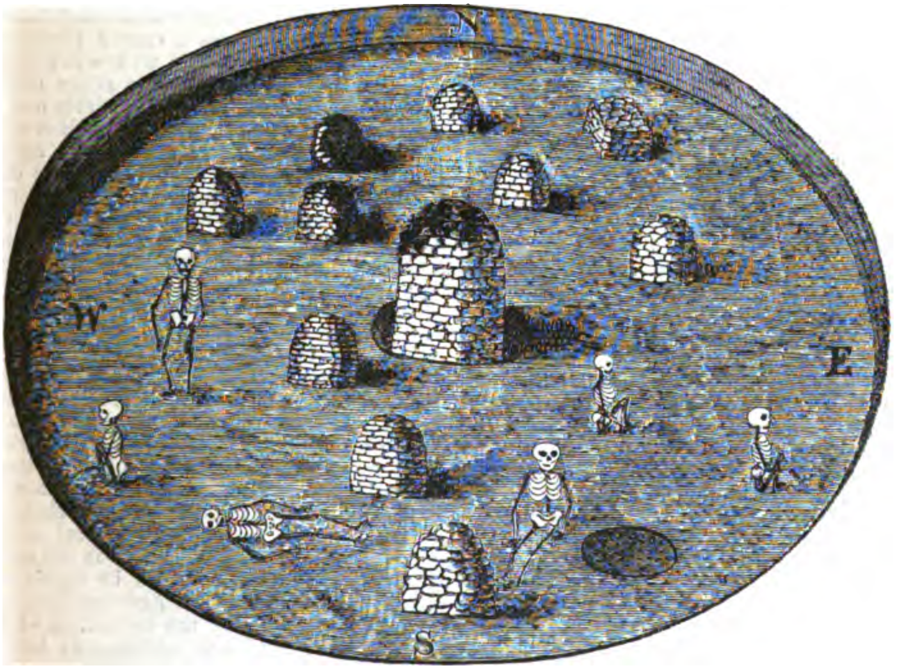
The Church Congress.—The Church Congress met at Carlisle, September 30th. The opening sermons were delivered by the Archbishop of York, the Bishop of St. Andrews, and the Bishop of Derry. The Bishop of Carlisle presided at the sessions of the Congress. The first subject for the formal discussions was, "The Duty of the Church with regard to the Overcrowded Dwellings of the Poor in Towns and the Country." Papers were read upon it by the Bishop of Bedford, Major Rankin, M. P., the Rev. James M. Wilson, Head-Master of Clifton College, Mr. William Ingles, President of the Church of England Workingmen's Society, and the Rev. C. W. Stubbs. The subject of "The Rights of Parishioners in Parish Churches" was considered in papers by Archdeacon Hannah, Mr. H. Clark, Archdeacon H. R. Nevill, and Canon Perry. On the subject of "Popular Literature and Infidelity," papers were read by the Rev. J. E. C. Welldon, Head-Master of Dulwich College, the Rev. E. Maclure, Dr. Macaulay, editor of "The Leisure Hour," and the Rev. J. W. Horsley, Chaplain to Clerkenwell Prison (who spoke especially of obscene literature). In the sessions of the second day, papers were read: "On the Report of the Ecclesiastical Courts Commission, with Special Reference to Legislation," by Sir R. A. Cross, M. P., Archdeacon John Pilkington Norris, the Rev. Edwin Hatch, D. D., and Prebendary Ainslie; "On the Results of Recent Historical Research upon the Old and New Testament Scriptures," by the Bishop of Durham; on "Recently Discovered Inscriptions and Documents of the Early Christian Church"; by Captain Condor on "The Survey of Moab, Gilead, and Bashan"; and by Canon Tristram, on "The Bearing of Geographical and Archæological Exploration on the Old Testament"; on "Lay Ministration in Churches, in other Buildings, and in the Parish generally," by Mr. C. Mackeson, followed by an oral discussion, "On Foreign Chaplaincies, their Episcopal Supervision, and the Relation of English and American Congregations," by the Rev. Dr. Nevin, of Rome, Mr. Hallam Murphy, and Bishop Titcomb; "On Music as an Aid to Worship and Work," by Mr. W. Parratt, the Rev. S. A. Barnett, and the Rev. C. Hylton Stewart. A men's meeting in the evening was addressed by the Archbishop of York and other speakers. On the third day papers were read: "On Parochial Missions, in the Stages of Preparation, Conduct, and Sequel," by the Rev. Dr. Pigou, Mr. C. Powell, General Secretary of the Church of England Workingmen's Society, the Rev. W. H. Aitken, and Canon Lloyd; "On the Religious Side of Elementary Education in Church Schools and in Board Schools," by the Rev. J. Nunn, Lord Norton, and others; "On Foreign Missions, with Reference to Societies, Special Missions, and Mission Boards," by the Rev. M. H. Tucker, Mr. P. V. Smith, and the Rev. L. Rivington; "On the Best Means of raising the Standard of Public Morality," by the Rev. E. Thring, Capt. Seton Churchill, the Rev. Dr. Griffiths, and the Rev. G. F. Browne; "On England's Religious Duties toward Egypt," by Maj.-Gen. Sir F. J. Goldsmid, Dean Butcher, and the Rev. G. B. Howard; and "On the Influence of the Reformation upon England, with Special Reference to the Work and Writings of John Wycliffe," by Prof. Montagu Burrows, Prof. Creighton, and Canon Dixon. The morning of the last day's session was devoted to the consideration of "Some of the Aids to Holiness, including the Study of the Lives of Holy Men and Women, Active and Self-denying Charity, and Worship and Holy Communion," on which papers were read by the Rev. Sir Emilius Bayley, the Rev. E. H. Bickersteth, Mr. Titus Salt, M. P., the Rev. R. W. Randall, the Rev. D. Bardsley, and Canon Burroughs. Other subjects were "The Advantages of an Established Church," with papers by the Earl of Carnarvon, the Bishop of Winchester, Mr. Albert Grey, M. P., the Rev. T. Moore, Mr. S. Leighton, M. P., and others, and "The Duty of the Christian Teacher with regard to National Politics"; papers by the Rev. J. Llewellyn Davies, the Rev. F. F. Goe, Mr. George Harwood, and the Dean of Manchester.

ANTIPYRUM. See DRUGS, NEW.

ANTISEPTICS. See SURGERY.

ARCHÆOLOGICAL DISCOVERIES. American Shell-Heaps and Aboriginal Mounds.—Investigation of aboriginal relics in the United States is conducted under the auspices of local societies, and encouraged by the Peabody Museum of American Archæology and Ethnology. Extensive shell-heaps have been found on the coast of Maine, the more important ones having been remarked at Keene's Point on Muscongus Sound, and on the Damariscotta river. The shell-heap at Keene's Point, although the larger and older part of it has probably been washed away by the sea, still extends about eighty feet inland, and stretches for more than two hundred feet along the shore. It consists chiefly of clam-shells, with smaller proportions of other species, and was found to contain bones of deer, moose, bear, fox, otter, skunk, beaver, of large birds, principally herons and ducks, fishes, and turtles. The deposit was particularly rich in fragments of cord-marked and incised pottery. An unusually large number of stone implements were found, including rude hammer-stones, chipped stone points, and one polished celt, with bone points of various kinds. A few articles of iron, and English clay pipes, found just below the surface, indicated that the deposit had been added to after contact with the whites, "though there can be no doubt that it was commenced long before that time." Several mounds near Brentwood, Williamson County, Tennessee, were explored in 1882. From Hunt's mound, which is now, after a long period of cultivation, ten feet high and ninety-five feet in diameter, a red-elm tree, three and a half feet in diameter, was cut in 1875. Leading from the mound to a large boiling spring a furlong away, is a deeply worn trail, which can still be distinctly traced through the woods, where it is, in places, three feet deep and four feet wide. Nothing was found in the mound to indicate distinctly that it had been used for burial, or for cremation, but there were many stone graves in the immediate vicinity. This, with the fact that another and much larger mound twenty miles away is similarly surrounded by stone graves, suggested that mounds of this class may mark the sites of ancient cemeteries.

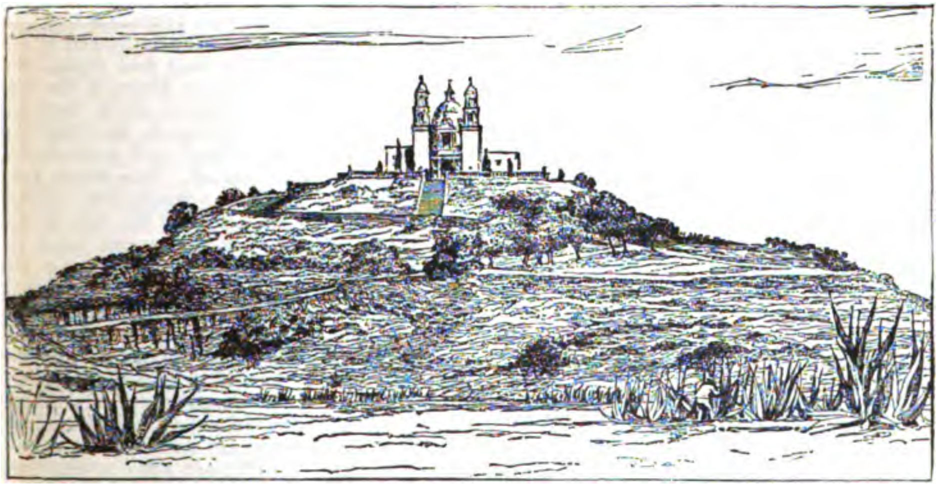
At about a mile from this mound are the remains of a cemetery that formerly covered several acres, of which eighty graves, previously undisturbed, were opened. They were of the same character as those of which Mr. Putnam, the curator of the Peabody Museum and the present explorer, and Mr. Curtis, had previously explored several thousands in the Cumberland Valley. They were made of large slabs of stone placed edgewise, to form the sides and ends, on which other flat stones rested, forming the tops of the graves. The bottoms of the cists were sometimes lined with small stones, but oftener with large potsherds, and, in some instances, probably with bark. In several of the graves, two or three, and in one instance five, bodies were buried. Considerable well-made pottery, of an ornamental character, resembling in type that of the Missouri graves, but of better finish; stone implements, not in large numbers, but including some very fine and interesting chipped and polished specimens; implements and ornaments made of bone; terra-cotta and shell beads, and a clay pipe with an ornamental bowl, and an elaborately carved stone pipe, representing a man holding a cooking-pot, which formed its bowl, were found in the graves. At one point in the cemetery, vestiges were found of the log-floor of a building that had been destroyed by fire, under circumstances indicating that it was of the period of the stone graves. Similar mounds have been opened under the direction of the Bureau of Ethnology in Caldwell County, N. C. The "Nelson Mound," which is on the farm of the Rev. T. F. Nelson, near the Yadkin river, was almost a true circle in outline, thirty-eight feet in diameter, but not at any point exceeding eighteen inches in height. The builders of the mound had first dug a circular pit, with perpendicular margin and of the full diameter of the mound, then deposited their dead, and afterward covered them over, raising a slight mound over the pit. The central figure in the cut is a stone grave or vault standing exactly in the center of the pit. A circular hole, a little more than three feet in diameter, extending down three feet below the bottom of the large pit, had been dug; in it the body or skeleton had been placed perpendicularly upon its feet, and the wall had been built up around it from the bottom of the hole, converging, after a height of four feet was reached, so as to be covered at the top by a single soapstone rock of moderate size. On the top of the head of the skeleton were found several plates of silver mica, which had evidently been cut with some rude implement. The closeness of the dirt around the bones indicated that the flesh had been removed before burial, and the vault filled up with dirt as it was built up. Other skeletons, the positions of which are marked in the engraving, some in a sitting or squatting position, some lying horizontally, some inclosed with a wall, some uninclosed, were found in the mound. The faces of all the squatting skeletons were turned away from the standing central one. At one point was found a quantity of black paint in little lumps, which appeared to have been molded in the hull of a nut; at another point a cubical mass of water-worn bowlders, but with no bones, specimens of art, coal, ashes, or indications of fire on or around it. But some of the stones of the vaults and the earth immediately around them, and some of the bones of the inclosed skeletons, were fire-marked. Mr. Putnam and his co-laborers have recovered large quantities of interesting relics from the mounds and aboriginal works near Madisonville, and on the Little Miami river, in Ohio. At Madisonville, where are the remains of a large cemetery, finger-rings of copper were discovered, still on the finger-bones. The Turner group of thirteen mounds and two earth circles, inclosed by two



THE NELSON MOUND, AFTER EXCAVATION.

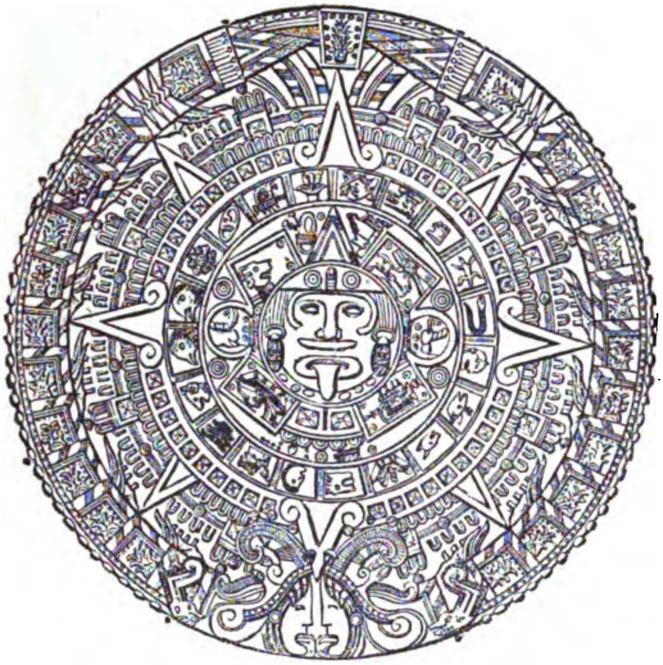
circular embankments, in Anderson township, Hamilton County, Ohio, has been carefully and thoroughly explored, with the earth examined shovelful by shovelful. Thousands of objects have been recovered, and valuable facts regarding the structure of the mounds have been obtained from them. Several of the mounds had within them "altars," or basins of burned clay, one of which contained about two bushels of ornaments made of stone, copper, shells, teeth, and thousands of pearls. Several of the copper ornaments were covered with native silver, which had been hammered out into thin sheets and folded over the copper; and one copper pendant seems to have been covered with a thin sheet of gold—the first instance in which native gold has been found in the mounds. The ornaments, cut out of copper and mica, are of many forms, some of them peculiar—scrolls, scalloped circles, and oval pendants of copper; circles and bands, and heads of animals in mica, the features of the animals being emphasized by a red color; and a grotesque human profile in mica. Several masses of meteoric iron and ornaments made from it were found on this altar. All of the metallic ornaments were manufactured by hammering. On another altar were found several terra-cotta figurines of a character heretofore unknown from the mounds. The peculiar manner of wearing the hair, and the peculiar head-dresses and large, button-like ornaments shown by the human figures, were of particular interest; and with them were found two dishes, carved from stone, in the form of animals; a serpent cut out of mica; several hundred small quartz pebbles; nearly three hundred astragali of deer and elk; and ornaments of copper, shells, etc. The larger of two mounds within the earthwork on the hill contained a small central tumulus, surrounded by a carefully built stone wall, and covered in by a platform of stones, over which was a mass of clay. On this wall were two depressions, in each of which a body had been laid, and outside the wall in the surrounding clay were found several skeletons, one of them lying upon a platform of stones. With these skeletons were found a copper celt, ornaments made of copper and shell, and two large sea-shells; and with each of them a pair of spool-shaped ear-ornaments of copper. The thirteen mounds differ much in their structure. Under one of the large altar-mounds was a large ash-pit, six feet deep, similar to the ash-pits of which a thousand had been discovered in the cemetery at Madisonville, the object of which had not been explained. Mr. Putnam's accounts of these ash-pits have, however, suggested to Miss Alice C. Fletcher a similarity between them and the disused *caches* of the Omahas, who, after having abandoned them as *caches*, use them for ash-pits, and when they have been nearly filled up, cover them with earth. In other mounds, pits, or beds of ashes, containing bones, were found; in one, a copper celt, lying on the bones of a hand, with casts of the papillæ of the fingers distinctly preserved in the carbonate of copper. One mound, stratified and of unusual structure, contained four circular pockets, or excavations, each ten inches deep and fourteen inches in diameter, about four inches apart. Three of them contained a dark, pasty substance that became hard on drying, and the other one fragments of stone, burned clay, and earth. A further examination of the larger of the altar-mounds, made in 1883, showed it to be of a far more complicated structure than had been made evident by the work of the previous year. It was found to have been surrounded by a stone wall two feet high, below what had been supposed to be the natural level of the ground, at one place in which, higher and wider than the rest, was a cavity covered with stones erected in a dome-shape, containing the burned remains of a human skeleton, with articles, among which was a carved piece of a deer's antler. Within this wall was a bed of burned clay, and under that a series of pits about three feet in diameter, and from four to nine feet deep, connected with tunnels or tubes eight feet long and a foot in diameter, having a slight dip downward from the pit, and ending in a small vertical tube, which extended to the "concrete" or gravel layer, above the burned clay. The walls of the pits showed the effects of great heat, and at the bottoms were ashes containing fragments of burned bones. Two of the pits had dome-like coverings of clay, in one or two of which were two small holes. The investigation of this branch of the subject has only begun. Many other mounds were examined, all of which presented their several points of interest, the description of which would involve much detail. From one of them were recovered seventy-one skeletons, each of which had been surrounded with stone at the time of burial, and with the skeletons a large number of articles. Several of the mounds in this part of Ohio, and in the Scioto Valley, which were described by Squier and Davis, and by Hildreth and Atwater, have been greatly worn away by the cultivation of the ground. Dr. Charles C. Abbott, who has recovered many thousand stone implements from the gravels of Trenton, N. J., has found among them two spear-heads of native copper, a worn fragment of a human tooth, *in situ*, about twelve feet from the surface and near it, two years later (April 18, 1884), the fragment of a jaw, which are regarded as undoubtedly of the same age as the gravel. These discoveries are considered important, as removing the doubts respecting the actual occurrence in the gravel of a large portion of a human skull that had been given Dr. Abbott, with a statement by the giver that he had found it there.

Mr. Bandelier's Investigations in New Mexico.—Mr. A. F. Bandelier has been engaged for a number of years, under the direction of the Archæological Institute of America, in examination of the ruins of the ancient Pueblos and studies of the sedentary Indians of New Mexico. He has determined that the area occupied by the former abodes of the sedentary Indians is limited on the east by the region lying forty miles west of the river Pecos in New Mexico, and extending westwardly to within about one hundred miles of the Colorado, while to the north it stretched nearly to the fortieth degree of latitude. As for its southern limit, it is known that, at the time of their discovery, all the ruins of stone or adobe in central and southern Arizona, and in the southwestern part of New Mexico, and as far down the Rio Grande as San Marcial, had been abandoned prior to the coming of the Spaniards. The general disposition of these ancient remains is indicated by that of the permanent water-courses, with their timber and cultivated soil; while the particular location is frequently determined by the strength of the position. In the course of his work, during 1883, he examined a considerable number of pueblos and villages of "small houses," including some whose names are associated with the history of the Spanish conquest, and others which had a traditional fame. As the conclusion of his architectural studies among these ruins, Mr. Bandelier finds a well-defined system of growth from the temporary Indian lodge to the pueblo house of to-day. The winter houses of the northern tribes, with their chimneys, are paralleled in everything but material by the "small houses" of New Mexico and Arizona. Among the tribe called Hava-supay, cognates of the Moquis, dwelling in the cañons of the Colorado, the house built of wood and mud is proved to be not an exotic, but the result of natural growth. In Mr. Bandelier's judgment, the great number of ruins scattered through New Mexico and the neighboring Territories is by no means an evidence of a large population at any one time. His opinion, confirmed by the traditions of the Zuñis and the Pimas, is that a large number of ruined buildings were successively and not simultaneously occupied by the same people. While the variety in the architectural shapes, he continues, "is evidence that the population has fluctuated back and forth, and while it is hardly to be doubted that most of the different classes of houses were simultaneously occupied in sections distant from each other, it is scarcely probable that two or more kinds were inhabited at the same time in one and the same district. These variations indicate, therefore, the successive changes in population, and are the elementary guides to the local history of a pre-documentary past." In a report of the progress of his work in January, 1884, Mr. Bandelier mentions observations of dwellings in caves and "cave villages" on the head-waters of the Sapillo, a tributary of the Gila river, and on the Gila itself. In connection with these peculiar structures, which "are perhaps larger than the open-air ruins, compactness compensating for the limitation in space," it is said that wherever the topography permits, villages were erected in open spaces. A report has been published, through the Archæological Institute, of an archæological tour that Mr. Bandelier made in Mexico in 1881. It contains accounts of the explorer's observations of the mounds of Cholula and of the ruins at Mitla. Among the most remarkable relics of Aztec civilization are the "Sacrificial Calendar Stone," the "Sacrificial Stone," and the idol called Teoyaomiqui, all of which were dug up in the Great Plaza of Mexico. The Calendar Stone is of porphyry, and bears the



THE GREAT MOUND OF CHOLULA.

a permanent home, and no longer only a winter dwelling. As wood disappears, adobe construction takes its place for the "small houses," and from this to the many-storied pueblo building there is an unbroken chain of types; so that the highest form of construction is thus design illustrated in the engraving. It is a circle eleven feet two inches in diameter, in low relief, composed of concentric circles and divided off into regular panels, each of which incloses some pattern or figure. In the center is the face of the sun-god surrounded by emblems of chronometry. The "Sacrificial Stone" has been the object of considerable controversy. It is a cylindrical disk of porphyry, three feet seven inches thick, and about twenty-eight feet in circumference. The top is convex, with designs in relief, but having a basin in the center, from which a deep channel is cut to the edge of the block. Around the cylinder are sculptured fifteen identical groups, each representing a warrior offering gifts to another, who accepts them. Mr. Bandelier finds that the block is not an accurate cylinder, and observes that the sculptors did not have means to correct the shape of the stone, but did the best they could with it without attempting to shape it nicely.



SACRIFICIAL CALENDAR-STONE.

Edited Assyrian and Babylonian Inscriptions.—The second part of the fifth volume of "Assyrian and Babylonian Inscriptions," published in 1884 by Sir H. Rawlinson, contains a number of valuable historical texts. The most important of them is probably the three-column terra-cotta cylinder of Nabonidus, 550 B. C., which, besides recording the battles of that sovereign, in describing his excavations and restorations of the temples, gives the date of repairs that were made upon the temple of the sun-god at Sippara, by Naramsin, the son of Sargon, as about 3750 B. C. This is the earliest date yet established in ancient history. A text from a Babylonian terminus, or boundary-stone, contains the charter of freedom granted to the city of Bit Karziyabku in return for the aid rendered by its ruler, Ritti Merodach, to the Babylonian king Nebuchadnezzar I (B. C. 1120). Another tablet records how Nebobaladan, B. C. 900, set aside the revenues of certain royal fanes for the restoration of the temple of the sun-god at Sippara, which had been destroyed by the Suttû, and for its maintenance forever. This tablet contains important information respecting the services, sacrifices, and festivals of Babylonian sun-worship. An inscription of Assur-nasir-pal, King of Assyria, B. C. 860, is remarkable for the insertion of straight lines between the sign that finishes one word and that which begins the next. Among other documents are a Babylonian calendar containing examples of the superstitions respecting lucky and unlucky days, etc., which prevailed among the people; letters, petitions, and dispatches, and business papers. Contrary to the impression that has prevailed that the old Babylonian libraries were destroyed by the Assyrian invaders after they had copied the tablets and carried them to Nineveh, the discoveries made by Mr. Rassam show that the libraries survived the invasion, and that the cuneiform literature endured and was vital till a comparatively late period. The newly published volume contains the proofs that learning was revived in Chaldea after the fall of Assyria; that the study of the sacred texts, legends, and poems was continued during the period of the Persian kings, and under Greek and even Roman rule, and that distinct schools existed in the temples. Among the inscriptions published are some grammatical and lexicographical tablets from the temple school attached to the shrine of the great god of learning, Nebo of Borsippa, which are dated in the reigns of Cyrus and Artaxerxes; a cylinder of Antiochus Theos, of B. C. 280, and some tablets that bear dates proving them to have been written as late as B. C. 29.

Inscriptions of Nebuchadnezzar.—Two inscriptions, of little historical importance, of Nebuchadnezzar, have been found in the northern part of the eastern range of Mount Lebanon, at about two hours' distance from the village of Herme, on the river Orontes. They are engraved on the rocks on opposite sides of the path up the Wâdy Brissa. Each of the inscriptions is accompanied by a *basso-rilievo*. The inscriptions relate to an account of the buildings the king was constructing in Babylon. An inscription of Nebuchadnezzar, deposited in the New York Museum of Art, was provisionally translated in November, 1884, by J. F. X. O'Conor, S. J. It refers to the rebuilding and restoration by Nebuchadnezzar of the Temple of the Sun, at Sippara, and relates that "the God Merodach, the great Lord, in mighty power raised me up for the restoration of the city and the rebuilding of the temples. A lofty name he proclaimed. The Temple of Parra, the Temple of the Sun, at Sippara, which long before me was in decay and needed repair . . . I rebuilt." Then, after relating that the work was not done by any special command of the god, but under the impulse of "the fear of his divinity" and with his encouragement, the king offers a prayer: "Samas, great Lord, upon the joyful entering into the Temple of Parra, thy glorious temple, into the works of my hands, truly be favorable, and may thy assistance complete my glory. In thy word of justice, grant me (?) a fullness of glory, a life unto a remote day, and the establishment of my throne for eternity."

The Wolfe Expedition.—Steps were taken in the autumn of 1883 for organizing an American expedition to visit and explore some of the Assyrian and Babylonian ruins. Funds were contributed toward the purpose by Mrs. C. L. Wolfe, of New York, and the enterprise was given the name of the "Wolfe Expedition." The work of exploration is to be carried on by the Rev. W. Hayes Ward, D. D., of New York, one of the few American gentlemen who have paid special attention to the study of cuneiform literature, and Messrs. Haynes, of Robert College, and J. R. S. Sterrett, of the American School of Classical Studies at Athens. Dr. Ward started on his journey in September, 1884, and was joined by his companions in Constantinople, where he was furnished by the Turkish Government with all the papers necessary to secure the end he has in view. At the latest accounts the party were at Marash, examining the Hittite relics there. They expected to spend the winter in investigations of the ruins in Mesopotamia.

Operations of the Egypt Exploration Fund at Pithom and Zoan.—The society called the Egypt Exploration Fund was formed in England in 1882 for the purpose of promoting the examination of the ancient ruins in the Delta of the Nile, with especial reference to the identification of the places mentioned in the Bible in connection with the sojourn of the Israelites. Its first work was performed during the season of 1882–'83, under the immediate direction of M. Edouard Naville, at the mound known as the Tel-el-Maschuta, in the Wadi-et-Tumilat, on the line of the sweet-water canal, near the railroad station Ramses, and resulted in the identification of that place with Pithom, one of the treasure cities which the children of Israel built for Pharaoh, as well as with the city known under the Roman dominion as Heroopolis. M. Naville also learned that Succoth, the place of the first encampment of the Hebrews on the journey of the Exodus, was here, and found an inscription pointing to Pikeheret, which is supposed to be the Pihahiroth of the Exodus, as being in the vicinity. A possible corroboration of this identification has since been found in a manuscript relating to the journey of a Frank woman in Egypt, in the fourth century of our era, in which the author mentions that she was shown a place called Pithona, as the city that the Hebrews built for Pharaoh, and speaks of the village of Hero as occupying the same site. Thence the lady relates that she went to Ramses, twenty miles distant.

The excavations of the Fund were carried on during the season of 1883–'84, under the direction of W. Flinders Petrie, at Sân, the Zoan of the Bible, where was the capital of the fifteenth and sixteenth dynasties of shepherd kings, and of the twenty-first and twenty-third (or Tanite) dynasties. According to a passage in Numbers xiii, 22, Zoan was built seven years after Hebron. The mounds that mark its former site were prominent objects among the marshes of the Delta, and many interesting relics had been found among the fragments lying loose on the surface of the ground. A few preliminary excavations had already been made by M. Mariette, who, being unable to complete the work, had again covered up the objects he had found, to preserve them. According to M. Naville, there was no place in Egypt where destruction had been as complete and as unmerciful as there. Mr. Petrie began his work with the excavation of the temple, an imposing ruin of red granite from Syene, which occupied one of the numerous mounds marking the site of the ancient city. This building was surrounded by two inclosure-walls, one of them of sun-dried brick and of very remote antiquity. The other one was erected in the reign of King Pisebkhanu, of the twenty-second dynasty, and is described as being of "incredible strength. It extended round three sides of the building, and is yet standing to the height of about twenty feet. It is eighty feet thick, and built of colossal bricks about eight times the size and weight of our modern bricks." Against and upon this wall dwelling-houses had been built, at different periods, as determined by the coins and potsherds found in them. The relics appertaining to the temple range in age from the period of the sixth to that of the twenty-sixth dynasty. Among them are stones bearing the cartouch of Pepè, possibly of him of the sixth dynasty; statues in red granite of Amenemhe I, and in black granite of Osortasen I and Amenemhe II; a torso in yellow sandstone of Osortasen II, and an inscription of Osortasen III, all of the twelfth dynasty; a few relics of less-known successors of those kings; numerous works and alterations by Rameses II and Menephthah I, and a block of Seti II, of the nineteenth dynasty; and a statue of Rameses III, of the twentieth dynasty. After this dynasty the city seems to have fallen into decay, and its stones to have been used for other buildings. Large numbers of stones were worked over by Siamen, of the twenty-first dynasty, and other kings who succeeded him. The later dynasties were represented by a stela of Tirhakah of the twenty-fifth, and an ornament of Psammetik II, of the twenty-sixth dynasty. The most striking monument found in the course of the temple-excavations was indicated in numerous stones worked into the building, which proved to be fragments of a statue of Rameses II, that exceeded in size any other statue known. It appears to have been a standing figure, crowned with the crown of Upper Egypt, and supported in the back by a pilaster. The great-toe measured eighteen inches across, and the figure is estimated to have been ninety-eight feet high from the foot to the crown, and, with its pedestal, one hundred and fifteen feet high, and to have weighed not less than twelve hundred tons. An avenue of granite blocks outside of the wall of Pisebkhanu was found to appertain to a temple of the Ptolemaic age, having a pavement of limestone and marked by fragments of statues and portions of bas-reliefs and sculptures.

Excavations in some of the houses near the temple brought to light relics of domestic articles, works of fine art, papyri, weights, etc. One house was called the "House of the Papyri," because of several baskets of manuscripts and waste-papers, partly or wholly burned, which were found in a closet under the cellar-stairs. In another house, called the "House of Statuettes," were many green porcelain figures of gods and sacred animals, and burned papyri; and a third house, the "House of the Glass Zodiac," furnished the fragments of a large sheet of colorless glass, which had been gilded on one side and painted on the other side with a square border-line, inclosing a circular zodiac and four heads of the seasons, while the corners between the border-line and the circle were covered with stars done in rhombs of gold-leaf. In one or other of these houses were also found domestic utensils, and vases in granite, basalt, alabaster, and bronze; in a niche in the wall the lamp used by the owner in going into the cellar; fine pottery curiously ornamented; specimens of blue glaze-ware; a portrait statue; coins and bronze fittings; a marble bust of a term; and specimens of weights, based on the units of the shekel, the kât, and the drachma. The papyri, of which some two hundred legible fragments have been saved, are of a miscellaneous character, and in various Egyptian and Greek handwritings. Among the documents in stone are the unpublished half of a tablet of Tirhakah, of which the other half has been published; an inscribed obelisk of the twelfth dynasty; in a curious cruciform Græco-Egyptian character, a large inscribed stela of Ptolemy Philadelphus; and several smaller stelæ, a royal statuette, and sphinxes. Three cemeteries were examined, the most ancient of which dates from the twelfth dynasty. In it were found a broken sphinx of fine early work in black granite, on which Rameses III had cut his name; and a royal tomb containing a rifled sarcophagus, from which the lid had been lost, 14½ feet long by seven feet nine inches in width, and without an inscription. The second cemetery was believed to be the chief necropolis of Tanis during the last stages of its civic history, and contained remains dating from just before the Ptolemies to about the time of Diocletian, during whose reign the city was burned. It contained a "rich quarter" and a "poor quarter," and a department for the sacred ichneumons, of which remains were found in thousands of oblong pots. A cabalistic circle of human skulls was found, with the ground strewed with "sacred eyes," in blue and glazed-ware. Among the remains in the third cemetery, which was of Roman times, was the mummy of a woman laid in a kind of open-work basket covered with a board. The robe of the mummy was edged with a variety of woven borders, white on red and red on blue, and other borders in red, yellow, white, green, and purple; and the jewelry consisted of a nose-ring, ear-rings, and a necklace. The mummy is supposed to have been of the time of Constantine.

None of the domestic and smaller articles as yet recovered at Tanis are of an earlier date than the Ptolemaic period, although the larger works give evidence that the city existed as early as the sixth dynasty. This is because the excavations have not yet reached the strata in which pre-Ptolemaic remains are imbedded. An idea of the magnitude of the work to be done before an expectation can be entertained of finding similar relics of any of the earlier dynasties, is given in the statement by Mr. Petrie in one of his reports that, "where there is least accumulation over the earlier remains, I find fifteen feet of Roman and post-Roman dust and rubbish; and this means that from forty to fifty tons of stuff have to be taken out of any hole we dig before we even begin to touch pre-Roman work." The excavations were continued during the season of 1884–'85.

Egypt Exploration Fund.—At the annual meeting of the Egypt Exploration Fund, held October 29th, Mr. Petrie reported that he had examined twenty sites of ancient cities and remains. The immediate results of the examinations were that some sites supposed to be of importance were really small, and this alone was of geographical value, for it prevented the formation of a mistaken expectation of finding a large city in such a situation, while other sites were of such size and so much encumbered with late deposits that their examination should be postponed. Among places that promised to yield important discoveries was one so covered with early Greek pottery that the potsherds crackled under the feet as one walked over it. This pottery was of every date, from the prehistoric down through the Phœnician and black-figured to the finest period of red-figured pottery on a black ground, and on into still later times. Such a site was of the first importance for the study of Greek archæology, and, so far as was known, it had never been visited by a European. This site, with the one in which the great sarcophagus of red granite already mentioned, and one in which the jamb of a gateway of Amenemhe I were found, were spoken of as places not before known to Europeans, on which the agents of the fund hoped to make more thorough explorations. They had been foiled in finding relics of the Hyksos dynasties at Zoan, simply by the immensity of the area to be explored there, to clear which exhaustively would take centuries of work, rather than the few months that could be given to it between the rains and the heat of one season. The whole of that area, however, had been examined to depths of ten, twenty, or thirty feet, with shafts that left no spaces of more than three hundred yards untouched by excavations. The financial report showed a balance of £2,162 to the credit of the fund. It was proposed to spend £1,650 during the ensuing year, and to send out an English student of Egyptology to assist Mr. Petrie. American friends of the fund had contributed £260 to its treasury, through the Rev. W. C. Winslow, of Boston. It was resolved to present a selection from the objects collected in the excavations to the museum in Boston.

Measurements of the Great Pyramid.—W. Flinders Petrie has published the results of measurements of the Pyramids of Gizeh, which he made during the season of 1880–'81 and 1882–'83, and in which he believes he has secured, by the systems of checks and triangulations he employed, a higher degree of accuracy than has been obtained in any previous survey. The dimensions of the Great Pyramid and its several parts, as calculated by him, differ from those announced by Prof. C. Piazzi Smith slightly, but sufficiently, if the measurements are actually more accurate, to overthrow the theory of mystic harmonies and proportions which Prof. Smith has founded upon his own surveys; and Mr. Petrie suggests new relations of proportion in the different parts of the pyramid, without attaching any particular significance to them. He controverts the theory of Lepsius, that the pyramids were built by successive accretions, or by the addition of new layers over the whole structure in the successive years of the king-builder's reign, and finds reason in his observations on the mode of structure for believing that they were constructed according to a predetermined plan. Mr. Petrie also inquired into the character of the tools that were used in building the pyramids. Of these tools, a bronze plate or scraper, and a copper instrument, and traces of bronze saws and tubular drills, have been discovered, but not the tubes themselves. The drills are supposed to have been jeweled with tough, uncrystallized corundum or some other gem-mineral capable of cutting into granite, diorite, and basalt, and the saws were probably about nine feet long. An enormous levy of forced labor might have been made during the season of the overflow, without interfering with the regular industries of the country. Barracks have been discovered to the west of the second pyramid which were capable of accommodating about four thousand workmen. These, supposing them to have been masons, with relays of one hundred thousand men every three months, would have been adequate, Mr. Petrie supposes, for the construction of the pyramids. The accuracy with which the base is squared—so close that it is hardly conceivable that the angles could have been measured without the aid of telescopes—is mentioned as the most wonderful feature in the construction of the Great Pyramid.

One of the most interesting results of Mr. Petrie's investigations was the discovery of evidence that these works of the ancient empire had been at some period subjected to deliberate, determined attempts to destroy them. To this is owing the condition of the second pyramid of Aboo Roash, which had led to the supposition that it had never been finished. From the examination of the rubbish-heaps around this work, Mr. Petrie learned that the whole granite casing of the pyramid had been stripped off to be laboriously smashed. He found fragments of a sarcophagus of granite, which the structure had once contained, and pieces of a throne and of a statue in diorite as large as the statue of Khafra of the second pyramid of Gizeh, which had been seated on the throne, and part of the name of the king. Chips and fragments of precious vessels in alabaster, bronze, and basalt, were also discovered in this *débris*. The rubbish in which the ruins of the votive chapel, attached to the pyramid of Khafra at Gizeh, are half buried, yielded similar results. Considerable masses of chips of diorite and alabaster statues, fingers, toes, bits of drapery, fragments of diorite and alabaster bowls, and even of hieroglyphical inscriptions, were found in it. These discoveries may help to throw light on the character of the period from the seventh to the eleventh dynasties, the darkest epoch of Egyptian history, which it is supposed may have been a period of revolution, and upon the hitherto unexplained expression of Herodotus respecting the pyramid-builders, that "the Egyptians so detest the memory of these kings that they do not like even to mention their names."

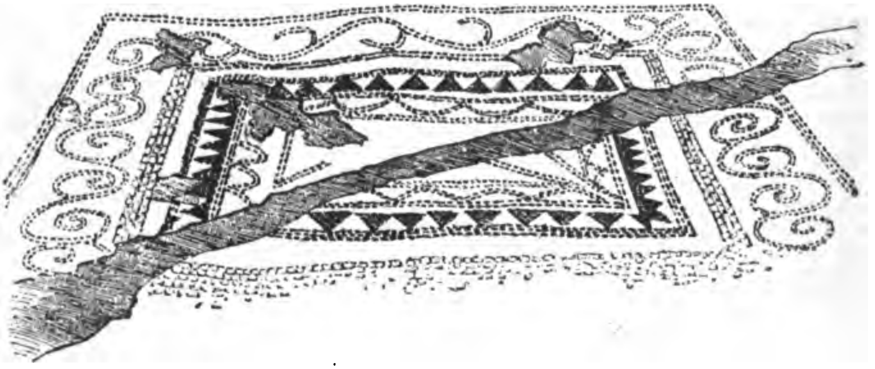
A Theban Tomb of the Eleventh Dynasty.—M. Maspero discovered in February, 1883, among the hills near Thebes, the tomb of a person named Horhotpu, of the eleventh dynasty, a very obscure period of Egyptian history, of which the known relics are very few. The tomb is composed of two chambers, tunneled in the hills, in a rock, the friable character of which obliged the artist to line the walls with blocks of limestone, on which to place his emblematic paintings and inscriptions. The sarcophagus, which was decorated, had been rifled of its mummy, and was lidless. Texts from the Book of the Dead and the Funerary Ritual were found. The discovery is of particular interest, because it supplies a distinct connecting link between the Mastabah tombs of the older dynasties and the tunneled tombs of the Theban Renaissance period, between which M. Mariette supposed a "complete rupture of all artistic traditions" had taken place.

The Necropolis of Khemnis.—During the spring of 1884, M. Maspero discovered at Ekhmeen, a large provincial town of Upper Egypt, about half-way between Assiout and Thebes, and representing the ancient Khemnis, or Panopolis, a hitherto undiscovered and unplundered necropolis of immense extent. Within three hours he verified the sites of more than one hundred catacombs, all absolutely intact, five of which, on being opened, yielded 120 mummies. The remains, so far as explored, are of the Ptolemaic period.

Roman Relics in England.—Relics of the Roman occupation have been frequently uncovered in the excavations for the erection of new buildings, and for other public works, in various parts of England. Several such remains were found during 1884 at York. A dedicatory tablet of Marcus Aurelius was unearthed in digging for the foundations of the new Mechanics' Institute in that city. A flanking wall of the Roman bridge, which is known to have crossed the Ouse, running at right angles to the bridgehead, and nearly parallel with the river, was uncovered in preparing for the foundations of the new post-office, and was bared for forty-five feet; under it ran a carefully constructed drain. At another place were found two Corinthian capitals, finely carved in limestone, but in considerable decay. Upon the mount, which has always been rich in Roman remains, were found parts of two altars, with the arm or handle of a large vessel of gritstone, curiously ornamented. Of one of the altars only the base remained, on which had been roughly cut the letters "S. P. R." The other altar, of fine limestone, had been broken, but bore an elegantly cut votive inscription by L. Celernius Vitalis, cornet of the ninth legion, with a caution against any violation of the offering.

A Roman family burial-place was discovered at Lincoln, in the heart of the city. The "loculus" consisted of a stone chamber, 5 feet 10 inches long, from 2 feet ½ inch to 8 feet 1 inch broad, and 8 feet 9 inches high. Connected with it by a short passage-way was a quadrangular chamber measuring 4 feet 2 inches by 4 feet 10 inches. Within the loculus ten vessels were found imbedded in lime; not ordinary globular-shaped funeral urns, but pitchers, like ordinary domestic jugs, containing ashes and fragments of burned bone. They were of coarse ware, with a greenish glaze, and unornamented. Several of them were covered with saucers or small cups, inverted and made to do duty as lids. Upon the upper or eastern end of the loculus was built a furnace, which was between five and six feet long and one foot nine inches wide and high. The discoverer believes from the small dimensions of this furnace that it was not used for cremation, but was in fact a Norman oven.

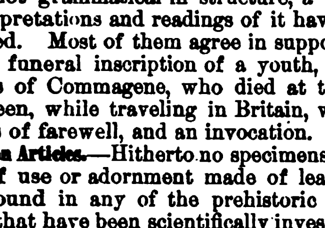
A Roman villa has been opened, under the Hill of the White Horse, at Uffington, Berkshire. It contained a pavement that constituted a very fine specimen of the third-century tesselIæ, which is illustrated in the engraving. Six skeletons were found, which are supposed to be of Saxons who occupied the villa after the retirement of the Romans. A massive building has been uncovered at Chesterhope in Northumberland, in which have been found two or three inscriptions that are attributed to the reign of Alexander Severus.



TESSELLATED PAVEMENT OF A ROMAN VILLA.

Greek Inscription at Brough-under-Stainmore.—Interest has been directed to a stone containing a Greek inscription, discovered in 1879 under the porch of the church at Brough-under-Stainmore, Westmoreland. It was found in repairing this structure that it had been partly rebuilt with sepulchral and other stones, among which were one bearing a Latin inscription containing the name of Septimius Severus and the stone with the Greek inscription. This stone, which is about two feet long and one foot wide, is engraved on one side. At the top it is ornamented with two squares, divided by cross-lines into eight triangles, and on either side is the so-called palm-branch found on both pagan and Christian monuments of the classical age. Between the palm-branches runs an inscription in twelve lines. From a photograph and casts of the inscription that were sent to him, Prof. George Stephens pronounced it to be Runic. Other casts have been taken and subjected to the examination of English scholars during the past year, who have decided that the inscription is Greek. Prof. A. H. Sayce and Dr. Isaac Taylor attribute it to about the fifth century of the Christian era. Some other critics assign it a date nearer the beginning of the Christian era. A closer examination has made it to appear to be in hexameter verse. As the inscription is much defaced and indistinct in many places, and is not grammatical in structure, a variety of interpretations and readings of it have been proposed. Most of them agree in supposing it to be a funeral inscription of a youth, named Hermes of Commagene, who died at the age of sixteen, while traveling in Britain, with an address of farewell, and an invocation.

Leaden Articles.—Hitherto no specimens of articles of use or adornment made of lead have been found in any of the prehistoric monuments that have been scientifically investigated in Europe. The eminent archæologist and Orientalist, F. Kanitz, has now discovered among the masses of fragments found in the tumulus of Rosegg in Carinthia, parts of a prehistoric wagon of lead, which shows that the rich deposits of lead in the neighborhood of Villach were not only known in prehistoric times, but were utilized in the art of the people. Kanitz has published an interesting account of this find in the sixteenth volume of the "Transactions" of the Vienna Anthropological Society, 1884, and has now issued it as a separate essay. Other articles in lead than the parts of the wagon were found in the same tumulus, and are represented in the monograph—figures of animals and fragments of two horsemen—all of which indicate an extremely limited degree of graphic talent in the prehistoric Alp-dwellers. The engraving represents one of the figures of horsemen.


LEADEN FIGURE FOUND AT ROSEGG.

The Palace of the Kings of Tiryns.—Dr. Henry Schliemann, assisted by Dr. William Dörpfeld, of Berlin, has explored the Acropolis and the Palace of the Kings at Tiryns, one of the most ancient cities of Greece. The whole upper and the whole middle Acropolis were carefully excavated, and two cross-trenches were dug in the lowest terrace. The mean thickness of the walls was twenty-four feet, while in some places on the upper Acropolis the extreme thickness was forty-eight feet. The wall of the upper Acropolis consisted of a lower part resting on the rock, and an upper part receding by about twenty-six feet, and provided in several places with narrow, longitudinal covered galleries, whence doors led to the terrace of the projecting lower wall. The walls were composed of large, almost unwrought blocks, which were piled one on another without any binding material. Traces were found on the top of the wall of what appeared to have been a roofed passage around the citadel, having a wall of raw bricks on the outside and columns on the inside. The principal entrance to the Acropolis was on the eastern side, close to the remains of the best preserved of several towers of which ruins were found at places along the wall. This tower stood to the right of the ascending passenger, so that the assailants of the fortification had to expose their right side, which was unprotected by the shield, to the defenders. The principal gate of the upper citadel was formed by two uprights, ten and ten and a half feet high, three feet broad, and four and a half feet deep, and had a breadth of nine feet three inches. The holes in which the door-hinges turned are still preserved in the threshold, and in the two uprights are holes, six inches in diameter, for the wooden cross-bar by which the gate was fastened. The holes of the door-hinges are also preserved in the threshold between the vestibulum and the hall of the propylæum. In one of the courts was an altar, which is compared with an altar mentioned in the "Odyssey" (xxii, 335, 336), as in the court of the palace of Ulysses, which was sacred to Zeus. The floors of all the apartments and courts were formed of a mosaic of lime and small pebbles, corresponding with the "beaten floor" in the palace of Ulysses. The floor of the principal hall, which was on the northern side of the court of the altar, was divided by incised lines into squares, and shows traces of the red painting with which it was adorned. The fore-room is connected on the west with several corridors and small rooms, among which was a bath-room about ten feet square, the floor of which was a single block of limestone about two feet two inches thick. A large fragment of a bathing-tub of terra-cotta, ornamented with spirals, was also found; and traces of the gutter and sewer by which the water was carried off were observed.

The other halls were connected with suites of apartments, but the original plan of one of the suites could not, on account of repeated restorations, be distinctly recognized. The foundations of the palace-walls rested upon the rocks, and were joined without any binding material. The walls themselves were partly of quarry-stones bonded with clay and partly of sun-dried bricks. The outsides of the walls were plastered with clay, then covered with a coating of chalk, and painted in red, yellow, black, white, and blue, with ornamentation similar to that which has been found at Mycenæ, Orchomenos, and Menidi, and figural representations, among which are mentioned a bull on which a man is dancing like an equestrian performer, and large fragments representing wings or sea-animals. A great number of sculptured ornaments were found in the ruins, among which are described as most worthy of mention, plain spiral ornaments of a green stone; a frieze of alabaster resembling a Doric triglyph frieze, in which the triglyphs are decorated with small rosettes and the metopes with palmettes and spirals, and which was ornamented all over with pieces of blue glass; and a Doric capital of porous stone, with sixteen flutings. The age of the ruins was indicated by "enormous masses" of knives and arrow-heads, of a very primitive form, of obsidian, painted horned Hera-idols, and numerous archaic terra-cotta vases with most ancient paintings in colors. The total absence is remarked, notwithstanding search was made for them, of varnished black, red, or yellow Hellenic terra-cottas. These facts are to Dr. Schliemann proof that Tiryns, as well as Mycenæ, was destroyed in a remote prehistoric age. Evidence that the palace was destroyed by fire appears in the masses of charcoal, burned bricks, and calcined stones, and the cementation of the clay plastering into a solid terra-cotta. Evidences were found of the existence of a settlement on the rock before the palace and the great walls were built, in the discovery, about sixteen feet below the floor of the upper citadel, of the remains of a chamber containing hand-made monochromatic pottery, much like that which had been found in the two most ancient cities of Troy. A few hand-made vases with rudely painted stripes were also found in this chamber. The low table-land around the Acropolis was examined for relics of the residences of the ancient city, and evidences were obtained of their early existence there, and of the continued duration of the lower city for a long number of centuries after the destruction of the royal palace; possibly till the end of the fourth century B. C. No traces of the tombs of the ancient kings were found in the immediate neighborhood of Tiryns.

The Tumulus of Marathon.—Dr. Schliemann has explored the great tumulus at Marathon, to solve a question that had arisen in his mind whether it were not of earlier date than the battle of Marathon, B. C. 490, and in fact prehistoric. He sunk a shaft from the top of the mound to the depth of one metre below the level of the plain, when deeper digging was prevented by the flowing in of water. The earth of which the tumulus was formed consisted alternately of clay and sand. The objects of human industry discovered were of very archaic pottery, wheel-made or hand-made, a part of them thoroughly, others only very superficially, baked. The bulk of the pottery is, like the Trojan, well polished, and was dipped before baking into a solution of well-cleaned clay, from which it acquired on one side, and often on both sides, a lustrous dark-yellow color. The ornamentation is various, and all archaic, leading Dr. Schliemann to assign to the work an antiquity of not later than the ninth century B. C., while the knives and arrow-heads of obsidian point to a much higher antiquity. A fragment of a vase of Egyptian porcelain was found, but no trace of human skeletons or of a funeral. Dr. Schliemann concludes that the hillock is a mere cenotaph, which belongs most probably to the ninth century B. C., and that the theory that identifies it with the Polyandrion of the 192 Athenians slain at Marathon must fall to the ground.

Other Excavations in Greece.—The excavations that have been going on for several years under the direction of the Archæological Society of Athens upon the site of the temple of Asclepios at Epidaurus and of the Amphiarion at Oropos, have resulted in the discovery of numerous pieces of sculpture and inscriptions of value. Excavations have been resumed under the same direction at Eleusis. Excavations have been begun by the direction of the Government and under the personal supervision of Dr. Dörpfeld, for the exploration of the entire site of the Acropolis of Athens. The work that was done two years ago southeast of the Parthenon resulted in the discovery of some very beautiful and remarkable monuments and remains of ancient Attic art.

Later Investigations of the Site of Troy.—Dr. Schliemann, having completed his excavations at Hissarlik, has published the final conclusions drawn from his investigations, which were continued at intervals through ten years, in a book entitled "Troja." The further and more thorough examination of the hill at Hissarlik and the adjacent plain has led him to revise the views that he had set forth in his "Troy" and "Ilios"; and while he finds his opinion that the spot is the true site of the Homeric Troy and of the Roman Ilium confirmed, he admits that he was mistaken as to some of the details of his previous identifications, and that he had not exactly understood the character of the ruins he had examined, and had not sufficiently appreciated the extent of the ancient city. Dr. Schliemann, in digging at the hill of Hissarlik, had distinguished what he regarded as the ruins of seven cities, one built upon the ruins of a previous one, the uppermost and most recent of which he regarded as the historic or Roman Ilium. In his older surveys he supposed that the third city from the bottom was the Troy of Homer. His later researches showed that this was a mistake, and that it was the second city that should have been regarded as corresponding with that Troy. The mistake arose from the fact, which was made apparent on further examination, that the people of the third city had built their houses among the colossal masses of calcined ruins of the second city, without attempting either to level or remove them, and that these ruins were at first confounded with the houses of the same stratum in which they appeared, instead of being assigned to the stratum whence their foundations rose. From the more careful examination of the second stratum of ruins, and the extension of the investigations into the surrounding level, Dr. Schliemann now claims to have finally proved that "in a remote antiquity there was in the plain of Troy a large city destroyed of old by a fearful catastrophe; that the hill of Hissarlik was only the Acropolis of this city, occupied by its temples and a few other large edifices, while the lower city extended east, south, and west, on the site of the later Ilium; and that, consequently, this city answers perfectly to the Homeric description of the site of 'sacred Ilios.'" This city was laboriously fortified, and its fortifications were in time renewed and extended. The walls and some of the chief edifices were constructed of sun-dried bricks, and were baked by fires raised against them after they were built up. The relics found in the ruins indicate that iron was not in use in this city; that implements and weapons of stone were equally prevalent with those of bronze; and that the gold-maker's art had attained a high degree of development.

Of the later Ilium have been found inscriptions, coins, architectural and sculptural fragments of two Doric temples, parts of a theatre capable of accommodating six thousand spectators, and portions of the walls.

American Archæological Research at Assos.—The Archæological Institute of America, after two years of work, has completed its excavations of Assos in the Troad. This city, which Joseph T. Clarke identifies with the city described by Homer as the steep and lofty Pedasos, the capital of the Leleges and the residence of King Altes, the father-in-law of Priam, and with the "Pedasa" mentioned in an Egyptian papyrus as a state whose people assisted the Hittites in the wars of Rameses II, was situated in a volcanic crater that rises directly and steeply from the sea to a height of about eight hundred feet, and commands an imposing view. The remains discovered in the excavations display the various phases of Greek civilization during twenty-four centuries. Before the work of exploration was begun, Col. Martin Leake, an English archæologist, contemplating the solid and accurate masonry of a part of the walls, which date from the fourth century B. C., had spoken of the ruins of Assos as presenting the most perfect idea of a Greek city that had hitherto been obtained. The first year's excavations of the Archæological Association were made about the temple upon the Acropolis. Among the archaic bas-reliefs and sculptures which decorated the building were found the crouching sphinxes that formed the coat-of-arms of the city, combats between lions, wild boars, and deer, in the Assyrian style, and a scene from the episode of Hercules and the Centaurs, which is worthy of especial mention as being the only known monumental work of art yet discovered in which the Centaurs are represented as having human fore-legs. An ancient bridge, which was partially excavated, is the only known example of a Greek bridge. The excavations made during the two years in the market-place revealed the Agora to be a more interesting work, and made it more completely known, than even the Forum of Pompeii. Along one of its sides extended a two-storied colonnade, or stoa, 350 feet long, made of the andesite of the mountain, which strikingly resembled the colonnade around the Temple of Athena at Pergamon. Next to it is the Bouleuterion, apparently of the same date, in which the archives of the city were kept. On the south side of the Agora stood a building that forms the only known example of a Greek bath, and is the only four-storied structure of antiquity ever recovered. A complete ideal restoration of it was made. It consisted, according to the description given by Mr. Joseph Thacher Clarke, "of an enormous hall, going through two stories, with twenty-six chambers upon one side; above this structure was a colonnade, the floor of which was upon a level with the Agora. In front of the stoa was an enormous basin for the reception of rain-water, covered by stone slabs, and so paved in that it was not visible to persons on the market-place; from it ran a subterranean conduit to the lower story of the bath, whence there were arrangements for the water to flow into the thirteen lower cells. The refuse water was drawn off into a larger basin beneath the bath-building, where there was again another reservoir to receive the clean water from its roof. This last reservoir was connected with the street, and so formed a grand public fountain, supplying pure water for the consumption of the people, while the water of the refuse basin adjoining it was used for the cooling of the theatre in the lower town. Next to the bath was built, in later times, a small temple (Heroön), in which the bodies of the benefactors of the city were deposited; their names were still found inscribed upon the entablature. At the east end of the Agora was the bema, the tribune of the orator in addressing a crowd. The level here was raised above the market-place, and flagged, while the remainder, like all Greek streets before the Christian era, was unpaved." The theatre was well recovered;

the gymnasium was in a good state of preservation; and a great palace-hall, or atrium, of late date, has an arch appearing with purely Hellenic details. The Street of Tombs presents monuments of every period, one of which can not be later than the seventh century B. C., while many are as recent as the eleventh or twelfth Christian century. One of the large mausoleums offers a perfect parallel to the tombs of the kings at Jerusalem. One hundred and twenty-four sarcophagi were opened for the first time, and many archaic cinerary urns were found. Inhumation and cremation appear to have been maintained side by side. In the sarcophagi were discovered ornaments of gold, terra-cotta figurini, small vases, and glasses, including some fine specimens of thin, transparent glass, and several thousand coins. The walls, of which the chief masses date from the fourth century B. C., are more than two miles in length, are remarkably well preserved, and rise in many places to within one or two courses of their original height of sixty feet and over.

Villas of Ancient Roman Nobles.—Advantage has been taken of the works of reconstruction and public improvement that have been going on in the city of Rome, to make a careful examination of the ruins and relics of ancient Roman life that are from time to time in the course of the work rendered accessible: and by this means much progress has been made toward an ideal restoration of the city as it was during the imperial period. The Via Nazionale, which has been in the course of opening and building during the past twelve years, passes close to the line of the ancient Vicus Longus, which ran through one of the most aristocratic quarters of the town. In this region, starting from the modern Piazza di Magnanapoli and advancing toward the baths of Diocletian, the remains of the "superb mansions" of between fifteen and twenty Roman nobles have been brought to light, but the explorations of them, which were made during the earlier period of the excavations, were "irregular and merely accidental," and the information that was gained respecting them was not as accurate or exhaustive as is desired. A more important and regular work, the building of the office of the Minister of War, is giving the opportunity of exploring under better auspices that portion of the district which extended from the Vicus Longus to the Vicus Portæ Collinæ, and from the Templum Salutis to the baths of Diocletian. The war office covers an area of 15,000 square metres which formerly belonged to the monastery of the Barberine nuns. The ground was explored in a desultory manner when the monastery was built, at the beginning of the seventeenth century, but the value of the information it might have yielded was not then appreciated. The new exploration of the same ground has been attended with the discovery of the town residence of Vulcacius Rufinus, the uncle of Julian the Apostate, who became consul in A. D. 347, prefect of the Prætorium, A. D. 349, and again, A. D. 368, governor of Numidia, member of the privy council, etc. The vestibule of the palace is a large hall, paved with marble incrustations of the rarest kind, and the lower part of the walls is covered with the same. On the left side of the entrance was found a marble pedestal dedicated to Vulcacius Rufinus by the township of Ravenna, the information contained in which, compared with that given by writers of the time, makes it possible to trace closely the successive steps of the distinguished citizen's career. This residence, which faced the street on the south, was surrounded by other palaces on the north and east sides, and an imperial warehouse on the west.

The remains of a very extensive villa containing numerous works of art have been discovered on the line of the road leading from Rome to Marino, near the railway-station called Il Sassone. The palace proves to have belonged originally to a Voconius Pollio, and to have afterward passed into the hands of the Valerii. It stands in the center of a platform, which was raised artificially above the level of the Campagna by a long line of arched substructures. It was built at the end of the first century, in the reticulated style of masonry, and was rebuilt two centuries later, with bricks and small cubes of *peperino*. It contained reception, bath, and sleeping rooms, a central hall shaped like a basilica, and gardens surrounded by porticoes, basins, and fountains. The pavements of the first period are laid down in chiaroscuro mosaics; those of the second period are incrusted with polychrome marble; and the columns of the porticoes are cut in rough local stone and coated with painted stucco. Among the numerous works of sculpture that have been brought to light are a Marsyas tied to a tree, in pavanazzetto marble; the statue of an athlete; a bearded satyr; a winged Victory; a group of an eagle carrying up to the skies a half-devoured lamb; a semi-colossal Apollo, "equally remarkable for good preservation and for excellent workmanship"; an aged man, representative of a new type of sculpture, the exact character of which has not been determined; a Hercules with the spoils of the Nemean lion, from which the head and feet are missing; a youthful and merry Bacchus; and a bust of Paris.

Exploration of the Atrium Vestæ.—The house of the Vestal Virgins in Rome has been excavated, and several statues or parts of statues or inscriptions of chief Vestals of the third century have been recovered from it. The house, which appears to have been rebuilt after the destruction of the Atrium Vestæ in A. D. 191, is a rectangular oblong building, and was surrounded by streets on every side. The entire block was 115 metres long and 53 metres wide, and the Atrium Vestæ proper, which gave its name to the whole building, was 67 metres long and 24 metres wide. The architectural style of the building was somewhat like that of the double-storied cloisters of the mediæval and Renaissance periods. The portico was furnished with 48 columns of cipollino marble on the ground-floor, and as many smaller columns of breccia corallina on the upper story. The Atrium was surrounded by state apartments in the lower story and by the private apartments of the Vestals in the upper story. A hall corresponding with the tablinum of a Roman house was paved with colored marbles and walled with marbles, and a number of smaller rooms around it are presumed to have been used for the deposition of archives. The situation having been very damp, elaborate arrangements were provided for warming and ventilating the building by means of hot-air furnaces and flues. The marks of the ruins indicate that the Atrium may have originally contained more than a hundred honorary pedestals with statues and eulogistic inscriptions of Vestales Maximæ; but in several of these cases more than one of the pedestals appear to have commemorated the same lady. Most of these works have disappeared by having been burned into limestone. Twenty-eight of the inscriptions have been recovered in the Atrium, and eight other inscriptions, some of them older than any in the Atrium, have been found in other parts of the city. The earliest of the pedestals in the Atrium bears the name of Prætestata, daughter of Crassus, whose mother, Sulpicia, is mentioned by Tacitus in his history, iv, 42. These names occur, in the order of date: Numisia Maximilia, A. D. 201; Terentia Flavola, A. D. 215 (on four pedestals); Flavia Publicia, A. D. 247 (on seven pedestals); Cœlia Claudiana, A. D. 286; a pedestal from which the name has been erased, A. D. 294; and Cœlia Concordia, the last or the last but one of the Vestales Maximæ. Three statues were found in a comparatively perfect condition. One, which is supposed to represent Flavia Publicia, is described as an "exquisite statue." One upper part of a statue has the head in a fine state of preservation; and several headless parts of statues have been found.

Eight hundred and twenty-nine Anglo-Saxon coins, bearing the names of Alfred, Edward, Athelstan, Edmund, Onlaf, Sitrice, and Archbishop Plegmund, have been discovered within the Atrium.

Exploration of Palestine.—The Palestine Exploration Fund has completed its survey of western Palestine, and has published the report of its work in seven volumes, with maps and drawings. It has identified, with more or less of certainty, the greater part of the more important places mentioned in the Bible, and has made as thorough examinations as local conditions and regard for the rights of property-owners would permit, of walls and ancient structures at Jerusalem and other cities. In its maps are noted down all of the springs, the caverns, the tombs; the ancient synagogues; the old "high places," now called *mukanes;* the names of Roman temples constructed of materials previously used for synagogues; of Byzantine churches made of the same stones taken from the Roman temples; and of crusaders' forts made from these same stones worked over again; of which any relics have been found. Some ten thousand names have been corrected and translated or transliterated; and a plan has been drawn and published of every important ruin. A geological survey has been completed by Prof. Hull, which clearly illustrates the physical structure and topographical features of the country, and throws light on those parts of biblical history that are connected with such features.

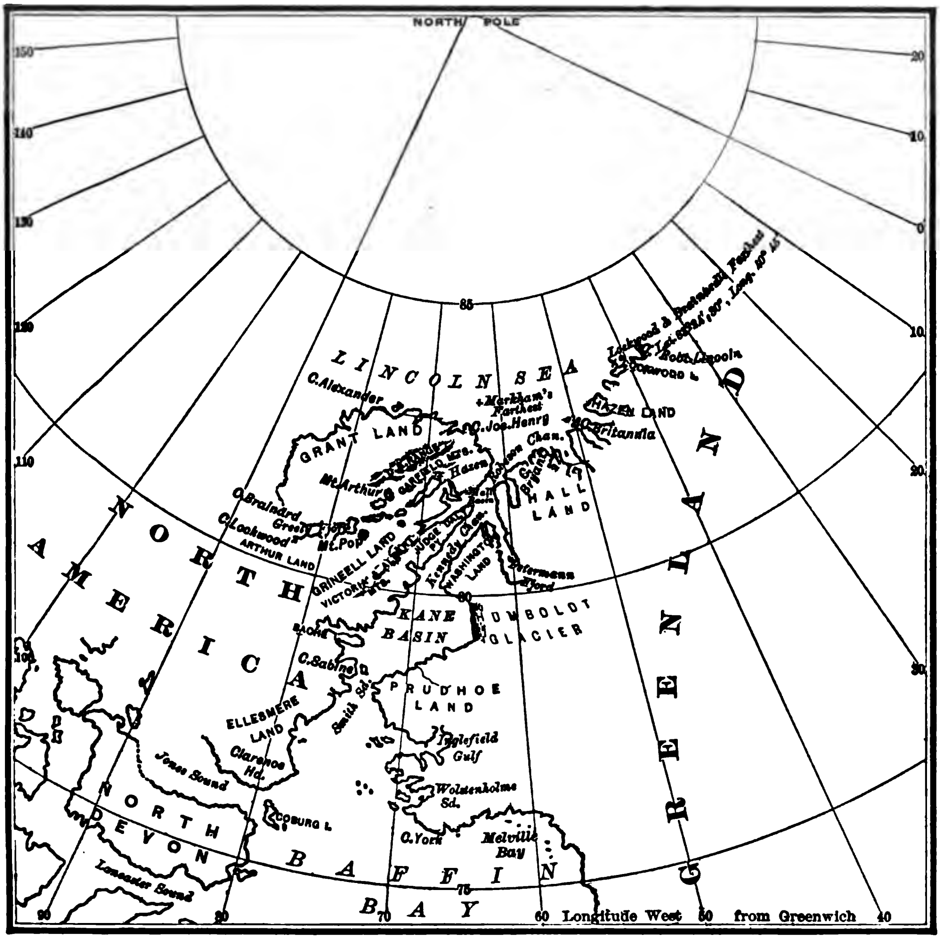
An important identification has been probably fixed, independently of the surveys of the Palestine Exploration Fund, of the site of Kadesh-Barnea. The location of this place, which was an important station in the wanderings of the Israelites, had been a difficult problem to geographers, and they had not been able to agree upon it. The most generally accepted location was that of Robinson, who fixed it at a place called Wady-el-Jayb, where are certain springs called Ain-el-Weibeh. His identification was not sustained by any special evidence, either in the traditional name or the topographical features of the place. Shortly after 1842, the Rev. John Rowlands, whose attention had been directed to the spot, but who had not visited it in that year, made his way to a place called Gadis, or Ain Quadis, southwest of the Ain-el-Weibeh, and a little west of north of a third conjectural location at the Wady Jerafeh, where he found a spur of solid, naked rock, from the base of which issued a considerable stream that was lost in the sand at three or four hundred yards away. The conditions, in the name, the character of the situation, and its features, its position in the order of stations, and in other respects, all favored the identification of the spot with Kadesh-Barnea. No one, however, had succeeded in finding this place after Rowlands's account of it was published, and his theory was ignored, while that of Robinson became current. In 1881 the Rev. Henry Clay Trumbull, of Philadelphia, whose account has been published during the past year, succeeded in reaching Ain Quadis, and found it to correspond accurately with the description given of it by Rowlands, nearly forty years before.

Survey of Moab.—Capt. C. R. Conder, R. E., has published, in a book entitled "Heth and Moab," an account of a survey of part of the land that is supposed to have been included in the empire of the Hittites, and of the Moabite country north of the river Arnon, which he made in connection with the work of the Palestine Exploration Fund. The primary object of the survey was the exploration of Moab proper, but this was prevented by the interference of the Turkish officials; so that the investigations in that region were confined chiefly to what formed the northwestern part of the territory allotted to the tribe of Reuben. It was during this survey that Capt. Conder visited and identified the site of the ancient Hittite capital of Kadesh. Three places had been indicated as possibly occupying the locality of this city: Antioch, Emesa (the modern Homs), and an island in the middle of the long lake near Homs. Capt. Conder gained satisfactory evidence that the real site was not at either of these places, but was at a spot now called Kedes, on the river Orontes, south of Homs. Two pictorial representations of Kadesh are given on the Egyptian monuments, in connection with the documents relating to the wars between Rameses II and the Hittites; one, which is slightly injured, on the walls of the Ramesseum at Thebes, and another at Aboo Simbul, fifty-seven feet by twenty-five feet in dimensions, showing the battle of Kadesh. All the features of the scene, as depicted in these views by contemporary artists, correspond with the situation examined by Capt. Conder, while no agreement was found between them and the other situations. The features of the place also correspond with the requirements of the textual descriptions of the battle; and the very name of the mound by which the ruin stands —Neby Mendeh—the surveyor observes, recalls the Egyptian war-god Mentu, or Mando, whom Rameses is said in the poem of the Pentaur to have invoked during the battle. The supposed situation in the lake was visited, and found not to fulfill any of the conditions of the problem. On the way between these two places, the party passed a curious inclosure which is called the "Ark of Noah." According to the Koran, the Tannûr, at Oven, south of Kadesh, was the spot whence the flood issued and whither it returned. This "Ark of Noah" is an earthen inclosure about three hundred yards square, with mounds at the angles, which may mark the place of corner towers, and is surrounded by a ditch forty feet deep and wide. The building within lies with its angles to the cardinal points. At Tyre, a Phœnician votive tablet to Moloch Astarte was unearthed, and a text in eight lines, invoking a blessing from Baal, Lord of Heaven. The temple of Melkarth was apparently one hundred feet wide and one hundred and eighty feet long, with three walls and a peristyle. It faced north of northeast, and its pillars were only eighteen inches in diameter. Among remains on the site were those of two altars similar to those of the so-called "libation-tables" of the Egyptians. One of them had an eagle carved on the side, and in its upper surface were sunk two flat basins, a foot square and a few inches deep. The other altar was plain, and had a single basin of the same size as those in the former altar. A peculiar distinction is remarked between the altars of the Egyptians, Phœnicians, and Moabites, and those of the Israelites, that the former have been artificially prepared, and contain libation-vessels, while the latter were required to be made of earth, or of stone on which no tool should be lifted. Before he was finally driven from the Moabite country, Capt. Conder succeeded in surveying nearly five hundred square miles of territory, discovered seven hundred rude stone monuments, and obtained a volume of notes, plans, and drawings, with forty photographs. Among the spots explored were the "Springs of Moses," the ancient "Ashdoth Pisgah," and the "Ridge of Nebo," the height of which was measured to be 2,648 feet. Here, at the "Field of Zophim," as well as at Banuth, Baal, and Peor, which was identified with a spot now called Minyeh, were found ancient stone monuments that appear to have been arranged in sevens, recalling how at each of these places, Balak, with Balaam, built seven altars. Passing the ancient Rabbath Ammon, where are distinguished the ruins of the Roman city of Philadelphia, dating from the second century, the party came, in the Wady es Sîr, upon the ancient trans-Jordanic Tyre, where were found, in the spot now known as the Arâk-el-Emir, or the Prince's Cliff, traces of the cave fortifications that were erected by Hyrcanus, when, after the death of his father Joseph, he was obliged to retire from Jerusalem before the superior force of his brothers.

The Empire of the Hittites.—Recent discoveries relating to the Hittites, and pointing to the former existence of a great empire of that people, were mentioned in the "Annual Cyclopædia" for 1882. The Hittites are often referred to in the Bible; they appear, under the name of the Kheta, on the Egyptian monuments, as formidable rivals and afterward as friends of the Egyptians, in the nineteenth dynasty, and under the name of the Khatti on the Assyrian monuments; and are probably the same as the Κήτειοι enumerated by Homer among the allies of Priam. Numerous remains of hitherto unexplained origin that have been found in parts of Asia Minor and Syria, are now attributed to them. Among them are gigantic statues and stelæ, and inscriptions, which it has not yet been possible to decipher. Some of these inscriptions, called the Hamath inscriptions, from the place where they were found, have engaged the attention of antiquaries for several years. Two capitals of the Hittites have been identified, at Carchemish, on the Euphrates, and at Kadesh, on the Orontes, both of which are mentioned in the Egyptian or Assyrian records contemporaneous with the period of Hittite power. All that has been ascertained respecting these people and their empire, together with an exposition of the conclusions that have been deduced from the known facts, has been collated and set forth in a book on "The Empire of the Hittites," by W. Wright (London, 1884).

ARCTIC EXPLORATION. The Greely Expedition.—The commission appointed in December, 1883 (see "Annual Cyclopædia," 1883, p. 424), to consider plans for a new expedition for the relief of Lieut. A. W. Greely and his party of observers at Lady Franklin Bay, received suggestions, orally and in writing, from various experts in Arctic navigation and exploration, including Capt. George E. Tyson, of the Hall Expedition; Lieut. W. I. Hunt, U. S. N., one of the officers of the Rodgers in her search for the Jeannette; Lieuts. Garlington and Colwell, and Capt. Pike, of the expedition of 1883, Lieut. Schwatka, and Dr. Emil Bessels, chief of the scientific corps of the Polaris Expedition. The report of the commission, based on the results of its inquiries, was submitted early in February. A programme for the expedition was mapped out, which was substantially that subsequently followed.

In the mean time a joint resolution had been adopted by the two houses of Congress, giving all needed authority for the expedition, and placing its preparation under the charge of the Secretary of the Navy, practically without restriction. Some controversy arose between the two houses over propositions to limit the expense, and to require that only volunteers should be sent on the relieving vessels. These restrictions were not adopted. The Secretary of the Navy had already made arrangements for the purchase of two Dundee sealers, the Thetis and the Bear, the former of which was obtained in London, and the latter at St. John's, Newfoundland, and an inquiry having been made as to the possibility of obtaining from the British Government the Alert, which had been the advance ship of the Nares Expedition, that vessel was presented to the Government of the United States without condition.



Before the vessels were received, the principal officers for the expedition had been already selected—Commander Winfield S. Schley, of the navy, being chosen for the chief command, and ordered to take charge of the preparations. The three vessels were brought to the navy-yard at Brooklyn, and there fitted and supplied for the special service, the Loch Garry being also chartered to accompany the expedition, and carry a supply of coal. While preparations were under way, the Secretary of the Navy received a letter from Capt. Sir George S. Nares, embodying his own suggestions, and those of other experienced officers of the British Navy, in regard to the practical conduct of the expedition. In addition to other provisions, Congress authorized a reward of $25,000, "to be equitably paid or distributed to such ship or ships, person or persons, not in the military or naval service of the United States, as shall discover and rescue, or satisfactorily ascertain the fate of the expedition of Lieut. A. W. Greely," etc. A proclamation offering this reward was issued by the Secretary of the Navy on the 17th of April. The three vessels specially designed for the rescuing expedition were fitted for the Arctic voyage at the Brooklyn Navy Yard, under the direction of Commander Schley, and supplied with every equipment that experience suggested, including material for a house to be erected on the coast of Greenland, and the necessary boats and sledges. The Alert, being the largest, was used as a supply-vessel, and provisions for two years were placed on board. A large supply of coal was also provided, the bulk of which was placed on the schooner Loch Garry. The Thetis was the flag-ship.

The members of the crews were specially enlisted as volunteers. The Bear was the advance vessel, and left for St. John's, Newfoundland, April 23d, the Thetis following May 1st, and the Alert May 10th. After taking additional supplies of seal-skin clothing, and obtaining dogs for sledging, the vessels left for the Greenland coast, the Bear sailing from St. John's May 5th, the Thetis on the 12th, and the Alert a few days later. The next information of the expedition was contained in a dispatch to the Secretary of the Navy from Commander Schley, dated at St. John's, from which the following are extracts:

> Thetis, Bear, and Loch Garry arrived here to-day from West Greenland. All well. Separated from Alert 150 miles north during a gale. At 9 P. M. June 22d, five miles off Cape Sabine, in Smith's Sound, Thetis and Bear rescued alive Lieut. A. W. Greely, Sergt. Brainerd, Sergt. Fredericks, Sergt. Long, Hospital Steward Biederbeck, Private Connell, and Sergt. Ellison, the only survivors of the Lady Franklin Bay Expedition. Sergt. Ellison had lost both hands and feet by frost-bite, and died July 6th at Godhaven, three days after amputation, which had become imperative. Seventeen of the twenty-five persons composing the expedition perished by starvation at the point where found. One was drowned while sealing to procure food. Twelve bodies of the dead were rescued and are now on board the Thetis and Bear.
>
> Greely abandoned Fort Conger Aug. 9, 1883, and reached Baird Inlet, Sept. 29th following, with entire party well. Abandoned all his boats and was adrift for thirty days on an ice-floe in Smith Sound. His permanent camp was established Oct. 21, 1883, at the point where he was found. During nine months his party had to live upon a scant allowance of food brought from Fort Conger; that *cachéd* at Payer Harbor and Cape Isabella by Sir George Nares in 1875, but found much damaged by lapse of time; that *cachéd* by Beebe at Cape Sabine in 1882, and a small amount saved from wreck of the Proteus in 1883, and landed by Lieuts. Garlington and Colwell on the beach where Greely's party was found camped. When these provisions were consumed the party were forced to live upon boiled strips from their seal-skin clothing, lichens, and shrimps, preserved in good weather when they were strong enough to make exertion. As 1,300 shrimps were required to fill a gallon measure, the labor was too exhausting to depend upon them entirely to sustain life.
>
> The channel between Cape Sabine and Littleton Island did not close, on account of violent gales all winter, so that 240 rations at latter point could not be reached. All of Greely's records, and all instruments brought by him from Fort Conger, are recovered and are on board.
>
> From Hare Island to Smith's Sound I had a constant and furious struggle with ice in impassable floes. Solid barriers of ice were overcome by watchfulness and patience. No opportunity to advance a mile escaped me, and for several hundred miles the ships were forced to ram their way from lead to lead through the ice, varying in thickness from three to six feet, and, when rafted, much greater. The Thetis and Bear reached Cape York June 18th, after a passage of twenty-one days in Melville Bay, with the two advance ships of the Dundee whaling-fleet, and continued to Cape Sabine. Returning seven days later, fell in with seven others of the fleet off Wostenholme Island. Returning across Melville Bay, fell in with the Alert and Loch Garry off Devil's Thumb, struggling through heavy ice.
>
> The Greely party are very much improved since rescue, but were critical in the extreme when found and for several days after. Forty-eight hours' delay in reaching them would have been fatal to all now living.
>
> The season north is late and the closest for years. Smith's Sound was not open when I left Cape Sabine. The winter about Melville Bay was the most severe for twenty years.

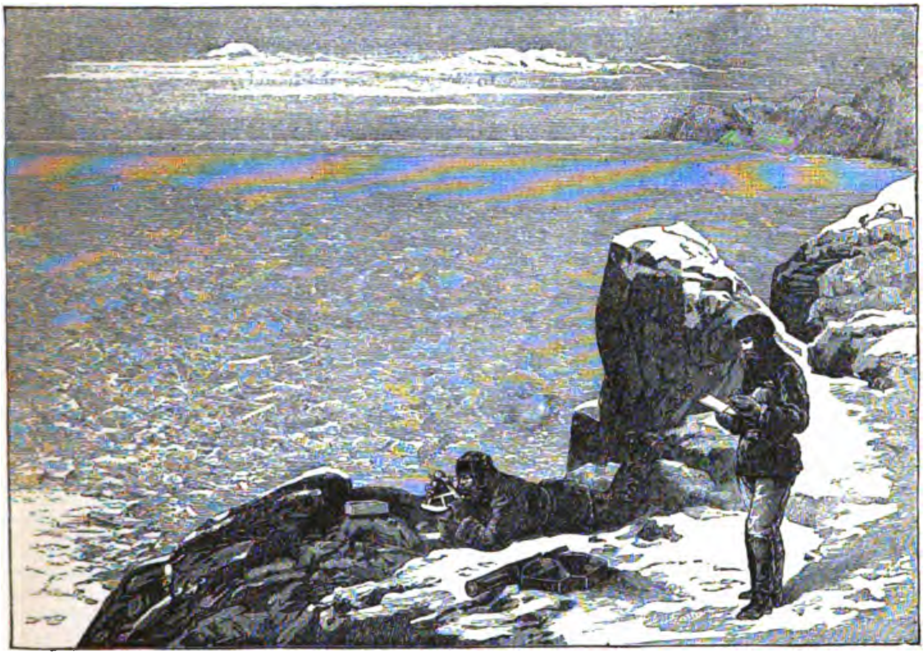
On the same day dispatches were received from Lieut. Greely by the Chief of the Signal-Service Bureau at Washington, from which the following extracts are taken:

> Abandoned Fort Conger, Aug. 9th. Frozen in pack off Victoria Head, Aug. 29th. Abandoned steam-launch, Sept. 11th, eleven miles northeast of Cocked Hat Island. When on point of landing were three times driven by southwest storms into Kane's Sea. Finally arrived, Sept. 29th, in Baird Inlet. Learning, by scouting parties, of Proteus disaster, and that no provisions had been left for us from Cape Isabella to Sabine, moved and established winter quarters at Camp Clay, half-way between Sabine and Cocked Hat. Inventory showed that by daily ration four and one third ounces meat, seven bread and dog biscuits, four ounces miscellaneous, the party would have ten days' full rations left for crossing Smith's Sound to Littleton Island, March 1st. Unfortunately, Smith's Sound remained open the entire winter, rendering crossing impossible. Game failed despite daily hunting from early February. Before sun returned only 500 pounds of meat obtained. This year minute shrimps, sea-weed, sassafras, rock-lichens, and seal-skin were resorted to for food, with results as shown by the number of survivors. The last regular food was issued May 14th. Only 150 pounds of meat left by Garlington, compelled me to send in November four men to obtain 144 pounds of English meat at Isabella. During the trip Ellison froze solid both hands and feet, and lost them, surviving, however, through our terrible winter and spring until July 8th. Survivors owe their lives to the indomitable energy of Capt. Schley and Lieut. Emory, who, preceded by three and accompanied by five whalers, forced their vessels from Upernavik, through Melville Bay, into

North Water at Cape York with the foremost whaler. They gained a yard whenever possible, and always held it. Smith's Sound was crossed and party rescued during one of the most violent gales we have ever known. Boats handled only at imminent risk of swamping. Four of us then unable to walk, and could not have survived exceeding twenty-four hours. Every care and attention given us. Saved and bring back copies meteorological, tidal, astronomical, magnetic, pendulum, and other observations; also pendulum, Yale, and standard thermometer. Forty-eight photographic negatives, collection of blanks, and photographic proofs.

For the first time in three centuries England yields the honor of the farthest north. Lieut. Lockwood and Sergt. Brainerd, May 13th, reached Lockwood Island, latitude 83° 24′, longitude 44° 5′. They saw, saw the northern shore termination, some twenty miles west, the southern shore extending some fifty miles, with Cape Lockwood some seventy miles distant, apparently a separate land from Grinnell Land. Have named the new land Arthur Land. Lieut. Lockwood followed, going and returning on ice-cap averaging about 150 feet perpendicular face. It follows that the Grinnell Land interior is ice-capped with a belt of country some sixty miles wide between the northern and southern ice-caps.

In March, 1884, Sergt. Long, while hunting, looked from the northwest side of Mount Carey to Hayes Sound, seeing on the northern coast three capes westward of the farthest seen by Nares in 1876. The sound extends some twenty miles farther west than shown by the English chart, but is possibly shut in by land which showed up across the western end. from 2,000 feet elevation, no land north or northwest, but to the northeast, Greenland, Cape Robert Lincoln, latitude 83° 35′, longitude 38°. Lieut. Lockwood was turned back in 1883 by open water on North Greenland shore, party barely escaping drift into Polar Ocean. Dr. Pavy, in 1882, following Markham route, was adrift one day in Polar Ocean north of Cape Joseph Henry, and escaped to land, abandoning nearly everything. In 1882 I made a spring and later a summer trip into the interior of Grinnell Land, discovering Lake Hazen, some sixty by ten miles in extent, which, fed by ice-cap of North Grinnell Land, drains Ruggles River and Weyprecht Fiord into Conybeare Bay and Archer Fiord. From the summit of Mount Arthur, 5,000 feet, the contour of land west of the Conger Mountains convinced me that Grinnell Land tends directly south from Lieut. Aldrich's farthest in 1876. In 1883 Lieut. Lockwood and Sergt. Brainerd succeeded in crossing Grinnell Land, and ninety miles from Beatrix Bay, the head of Archer's Fiord, struck the head of a fiord from the western sea, temporarily named by Lockwood the Greely Fiord. From the center of the fiord, in latitude 80° 30′, longitude 78° 30′, Lieut. Lockwood The two years' station duties, observations, all explorations, and the retreat to Cape Sabine were accomplished without loss of life, disease, serious accident, or even severe frost-bites. No scurvy was experienced at Conger, and but one death from it occurred last winter.



FARTHEST POINT NORTH YET REACHED, LATITUDE 83° 24′, LONGITUDE 44° 5′.

The story of the relief trips, as gathered from the officers of the Thetis and Bear, may be briefly told. The Thetis arrived at Disco, on the coast of Greenland, May 22d, ten days from St. John's. The Bear had arrived on the 15th, and, after one ineffectual attempt to proceed to Upernavik, had departed a second time for that point on the 21st. The Thetis proceeded in the same direction, accompanied still by the Loch Garry, on the 24th, and after severe struggles with the ice, using torpedoes to open the way, arrived at Upernavik, May 29th, and joined the Bear. Several Dundee whalers were encountered, anxious to join in the search.

On the same day the Thetis and Bear with several whalers left Upernavik, the Loch Garry remaining to await the Alert and a more favorable season. After brief stops at Kingston and Tessnisek and a long battle with ice-floes, in which gun-cotton and gunpowder torpedoes were several times resorted to, Cape York was sighted on the 18th of June. Here the vessels passed into open water, the whalers Wolf and Aurora leading, closely followed by the Bear and Thetis, the whaler Arctic bringing up the rear. Communication was made with the natives at Cape York, but nothing was learned. The Bear was sent on at once to Carey Island, while the Thetis visited Conical Rock, Wostenholme Island, Dalrymple Rock, Sanders Island, Cape Parry, and Northumberland and Hakluyt Islands on the way to Littleton Island, where the two vessels were to meet again. A record was deposited at Cape Parry. Both vessels reached Littleton Island on the 21st. Nares's cairn was found intact, with provisions in good condition; proving that Greely had not been on the east side of Smith's Sound. The Garlington and Beebe records were found and brought off; 760 rations were added to those left by Nares; letters were prepared to be taken back by the Alert in case the expedition did not return during the summer, and preparations were made for crossing the sound. On the 22d the passage was made to Payer Harbor, Cape Sabine, the Bear proceeding in advance. A landing was immediately made and searching parties sent out. Records of the Greely party were found by Lieut. Taunt and Ensign Harlow on Brevoort and Starnecht Islands, dated Oct. 21, 1883. These gave an account of the retreat from Lady Franklin Bay, and described the position of the quarters of the party, Camp Clay, at Baird Inlet, midway between Cape Sabine and Cocked Hat Island. Commander Schley went on board the Bear and started at once for the camp, the Thetis following. An officer of the Thetis gives the following account of the landing:

> The wind had increased to well-nigh a hurricane It tore over the hills in furious blasts, driving the water in sheets before it, and heeling the ship to an uncomfortable degree. The Bear had steamed nearly up to the ice, and people could be seen running about on shore. Some one was seen on the ice signaling with flags. The message was: "Send doctor with stretchers, and Harlow with photograph-machine; seven alive." Boats were lowered at once, manned with strong crews, and a party of officers and men started for the shore. It seemed a long pull. It was a hard pull; but with water dashing over the rail at every lunge, and rolling gunwales-under in the short but heavy seas, we finally reached the ice-foot, and hurried to the scene of misery. A few steps from the landing we met a black face, with horrid, staring eyes, wrapped in a clean blanket that contrasted strangely with the filthy clothes that covered the body of one of the survivors. It was Fredericks, who was strong enough to walk to the boats—a miserable sight, but cheerful compared with the one that met our gaze a few steps farther on. A slight incline to the left, and the busy relief parties came in view. Passing a small fire on which pots of milk were warming, we came to the tent, under which lay four of the poor fellows. Two lay outside, one with his face swollen so that he could barely show by his eyes the wild excitement that filled his being. The other was muttering, in a voice that could scarcely be heard in the howling of the gale, his hungry appeal for food. Pushing aside the flags of the tent, we saw a sight the like of which we trust never to see again. Crowded together in the little of the tent that was left standing lay Greely and three of his men in their sleeping-bags, their faces black with dirt. Their hollow cheeks and their gleaming eyes made a picture that we shall never forget, and told a story that has but few rivals in the histories of miserable sufferings. The short glance revealed four men with the hand of death laid upon them; one, indeed, was gasping his last feeble breath while food and stimulants were forced between his teeth. The fate of the other three was a question of a very few hours. The gale was killing them in their weak and exhausted condition. To move against such a wind was an impossibility. An able-bodied, healthy man bent to it at times. So there they lay, waiting for death, unable to cook the pitiful ration of tanned seal-skin and lichens that they called their meal. The poor sufferers were wrapped in blankets, fed with warm milk, beef-tea, and crackers, and carried to the boats. A photograph was taken of the camp despite the time, 11 P. M., and the weather. The living having been provided for, our next sad duty lay with the dead. The graves were on the summit of a ridge behind the camp—ten of them, with their scanty covering of gravel. Each body was carefully unearthed and wrapped in blankets, marked to correspond with its number on the diagram that was made, and carried to the boats. This task being finished, and the bodies divided between the boats, the next difficulty was to reach the ship. It seems almost a miracle that they got safely alongside, and could discharge their sad cargoes, with the survivors in charge of the sympathizing officers and crew, who removed their rags, bathed, and fed them. Their dead comrades were piled on the dory and covered with a tarpaulin. We steamed back to Payer Harbor, and about 4 A. M. made fast to the ice again in about the same place we first had the information that led to the stirring events of the night.
>
> The next day the Bear revisited the camp, and collected every scrap and relic appertaining to it. The cairns were revisited, and the records left by Greely, his pendulum, journals, the flag of the Nares expedition that he proudly brings back from the place where they left it as marking their highest latitude, his instruments, and their records, were all secured.

The following is Commander Schley's description of the scene that greeted his eyes at the tent:

> Lieut. Greely was found in his sleeping-bag, his body inclined forward and head resting upon his left hand. The "Book of Common Prayer" was open and held in his right hand. He appeared to be reading prayers to Private Connell, whose condition was most desperate and critical. He was cold to the waist; all sensation of hunger gone; was speechless and almost breathless; his eyes were fixed and glassy. Indeed, his weakness was such that it was with difficulty he swallowed the stimulants given him by Drs. Green and Ames. His jaws had dropped, his heart was barely pulsating, and his body temperature very low. This tender scene of a helpless, almost famished, officer consoling a dying companion was, in itself, one that brought tears to the eyes of the strongest and stoutest of those who stood about them on the merciful errand of relief. Sergts. Brainerd and Fredericks, and Hospital Steward Biederbeck were extremely weak, and hardly able to stand; they were no longer able to venture away from their camp to seek food, nor to prepare their simple diet of boiled seal-skin, nor to collect lichens, nor to catch shrimps, upon which they had to depend to a great extent to sustain life. Their faces,

> hands, and limbs were swollen to such an extent that they could not be recognized. This indicated that the entire party had but a short lease of life, probably not more than forty-eight hours at most. This fact was recognized by them all, and had come to them from their experience during that long and desolate winter in watching their dying companions, as one after another passed away from among them forever. Poor Sergt. Ellison was found in his sleeping-bag, where he had lain helpless and hopeless for months, with hands and feet frozen off. Strapped to one of the stumps was found a spoon, which some companion had secured there to enable him to feed himself. His physical condition otherwise appeared to be the best of any of the survivors, and this may be attributed to the fact that each of his companions had doled out to him, from their small allowance of food, something to help him, on account of his complete helplessness to add anything to his own by hunting about the rocks for lichens, or catching shrimps. He suffered no waste of strength by exertion incident thereto. This care of Ellison was such as only brave and generous men, suffering with each other under the most desperate circumstances, could think of.

The vessels ran across to Littleton Island on the 23d of June, and left there the day following, taking up the records, left for the Alert, and substituting others, giving the results of the expedition and directions for her future movements. Seven of the Dundee whalers were met off Cape Parry, working westward. They were informed that the quest was over. On the 30th the Alert and Loch Garry were encountered struggling with the ice off the Devil's Thumb. They turned back, and the combined squadron reached Upernavik July 2d. The Thetis and Bear stopped to take on coal, left there by the Loch Garry, and the others proceeded to Disco, where all were again united on the 5th. Leaving there on the 6th, they arrived at St. John's on the 17th.

The Greely expedition of 1881 was undertaken in pursuance of a plan adopted by the International Geographical Congress at Hamburg in 1879, on the suggestion of Lieut. Weyprecht, of Austria, the discoverer of Franz-Josef Land, for the establishment of thirteen circumpolar stations for scientific observation. It was fitted out under authority of an act of Congress, approved May 1, 1880. The party was to be composed of three officers of the army, one acting assistant-surgeon, and nineteen enlisted men, selected by recommendation from the ranks of the army. The appropriation for the expedition was made by act of Congress, March 3, 1881. Lieut. A. W. Greely was appointed to take command, and the spot chosen for the station was Discovery Harbor, on the shores of Lady Franklin Bay, latitude 81° 44′ north and longitude 64° 45′ west. The entire party selected for the service was as follows:

> First Lieut. A. W. Greely, Fifth Cavalry; Acting Signal-Service Officer and Assistant, Second Lieut. Frederick F. Kislingbury, Eleventh Infantry; Acting Signal Officer, Second Lieut. James B. Lockwood, Twenty-third Infantry; Acting Signal Officers, Sergts. Edward Israel, Winfield S. Jewell, George W. Rice, David C. Ralston, Hampton S. Gardner, William H. Cross, David L. Brainerd, and David Linn; corporals and privates, Nicholas Salor, Charles Elliot, Charles B. Henry, Maurice Connell, Jacob Bender, Francis Long, William Whistler, Henry Biederbeck, Julius Fredericks, and William A. Ellis. Octave Pavy, M. D., of Disco, Greenland, was commissioned as Acting Assistant Surgeon, and accompanied the expedition in that capacity.

Lieut. Greely received his instructions in April, 1881, and proceeded to St. John's, where he chartered the Proteus, and prepared it for the expedition, taking materials for a house, and stores for twenty-seven months. The Proteus sailed from St. John's July 7th, and touched at Disco and Upernavik to procure sledges, dogs, skins, and dog-food. Two Esquimau dog-drivers were added to the party at Proven.

From Carl Ritter Bay progress was obstructed by ice, but way was gradually forced to Discovery Harbor, where a landing was made August 12th. The cargo was speedily discharged, 140 tons of coal were landed, the house was rapidly put up. The station received the name of Fort Conger, and on the 18th of August the Proteus left the party to its Arctic isolation. The last communication from Greely to his superior, the Chief Signal-Officer at Washington, in 1881, was the following:

> Entered Lady Franklin Bay one month from leaving St. John's. Obtained natives' skin-clothing and dogs at Godhaven, Rittenbek, Upernavik, and Proven. Made most remarkable trip recorded from Upernavik through middle passage to Cape York in 36 hours, and in six days, two hours from Upernavik to Lady Franklin Bay, though detained 32 hours by fog. Entered Lady Franklin Bay, having meanwhile examined the English depot at Carey Island. Recovered the entire English Arctic mail at Littleton Island. Discovered the transit instrument of the Polaris in the quarters at Lifeboat Cove; obtained the record at Washington Irving Island. Overhauled the English depot at Cape Hawks, and landed the depot material at Carl Ritter Bay. Our vessel never met a pack worthy of the name, and was not stopped by ice until it was inside Cape Lieber, Lady Franklin Bay, eight miles from our destination, where we were delayed one week, being forced back south of the eightieth parallel. Entered Discovery Harbor August 11th, where our station is located, Water-Course Bay being impracticable for landing. Have killed here three months' rations of musk cattle. The weather is fine. Our building is framed and being covered. Party all well.

A week after the Proteus left the party, their house was finished. Scientific observations were begun at once, including in their scope meteorology, astronomy, magnetism, the temperature of the sea, thickness of the ice, the direction and speed of the tides, and the velocity of the wind and of sound at different temperatures. On the 1st of September Sergeant Brainerd, in charge of a party of five in a whale-boat, set out to the northwest and established a *cache* of provisions for exploring parties in the spring, near Cape Beechy, on the west side of Robeson Channel. The ice prevented them from proceeding farther, and after a struggle of fifteen hours with the oars, they were forced to abandon their boat and return to Port Conger overland. In November Lieut. Lockwood and Sergeant Brainerd with seven men attempted to cross Kennedy Channel to the Greenland coast, and examine the provisions left by Capt. Hall, of the Polaris, in

1871, but, on account of the darkness and drifting ice, they were forced to return, after much suffering, without accomplishing their object. The sun disappeared October 15th, and was absent 135 days, the twilight varying from half an hour to twenty-four hours. For two months continuously the light was so dim that the dial of a watch could not be read by it. The stars were visible constantly for three months, and at times the naked eye could discern those of one degree smaller magnitude than were visible in lower latitudes. The constellations were of great brilliance, and the moon was above the horizon for eleven or twelve days at a time. "Over all," said Lieut. Greely, "was a dead silence, so horribly oppressive that a man alone is almost tempted to kill himself, so lonely does he feel."

The long winter was passed somewhat monotonously in observations, military discipline, attention to sanitary necessities, and amusements. The quarters were heated by a coal-stove to the average temperature of 50°, games were indulged in, theatrical and musical entertainments were attempted, a paper was published, lectures were delivered, and holidays and birthdays were celebrated with exceptional festivities. A considerable part of the season of 1882 was devoted to geographical exploration. As early as February 19th, Lieut. Lockwood and Sergeant Brainerd, with a dog-team, set out to examine Robeson Channel from Cape Beechy, and going half across returned to camp on the 22d. Setting out again on the 1st of March, re-enforced by Sergeant Jewell and Esquimau Frederick, they crossed to Cape Lupton and examined the stores left at Thank God Harbor by the Polaris, which they found in good condition but scanty. The party was gone seven days, living in snow houses and experiencing a temperature of 56½° below zero. March 13th, Brainerd with seven men started again and placed a boat and provisions at the Polaris boat camp, returning in seven days after suffering intensely from a temperature of 61° below zero. These movements were in preparation for a trip on which Lieut. Lockwood started on the 3d of April with Brainerd, the Esquimau, Frederick Christensen, and a dog-team, to explore the northern coast of Greenland. They were supported as far as Cape Bryan by a party of eight, and proceeded thence with 25 days' provisions directly across the ice to Cape Britannia. Here the land trended to the west of north to Cape North, where they turned to the northeastward through a region never before trodden by man. Struggling through a severe storm lasting seven days, they reached the highest point ever attained toward the north pole, which was called Lockwood Island, latitude 83° 24·5′ north, longitude 40° 45′ west, on the 13th of May. A point of land visible some fifteen miles to the northeast was named Cape Robert Lincoln. They were forced to economize provisions and hasten their return on account of the exhaustion of their supplies. Vegetation was found to be scanty, and similar to that of Grinnell Land, but evidences of animal life were abundant. Traces of hares, lemmings, musk-oxen, bears, ptarmigan, and snow-bunting, were seen between Cape Britannia and Lockwood Island. The coast was high and abrupt, and cut by numerous fiords and inlets. A cairn was erected covering a record of the trip, and the party returned southward May 15th, picking up the Union Jack and sextant dropped by Lieut. Beaumont, of the Nares expedition of 1875, and arriving in camp June 1st, having been absent 59 days. Dr. Pavy and Sergeant Rice, with a team of nine dogs and the Esquimau driver Jens, had set out on the 19th of March to discover land to the north of Cape Joseph Henry. Supplies were advanced to the latter point. The sledge breaking down, Rice and Jens returned on foot, without sleeping-bags or tents, a distance of fifty miles, and obtained a new runner, rejoining their leader in five days. On reaching lat. 82° 56′, a southerly gale detached the ice-pack on which they were traveling, and they drifted about for twenty-four hours with an open lane of water between them and the land. A change of wind drove them shoreward, and they managed to escape with the loss of their tent and supplies. They reached Fort Conger May 5th, without having accomplished anything of value.

Lieut. Greely made two trips into the interior of Grinnell Land during the summer. He set out on April 25th, and was absent twelve days, proceeding with sledges by Conybeare Bay, which he found to lengthen out into Weyprecht Fiord. Into the latter Ruggles River discharged from the northwest. Following its course for fifteen miles, he discovered a lake sixty miles long by ten wide, which he called Lake Hazen. The chief source of the water seemed to be the ice-caps of northern Grinnell Land. Musk-oxen, wolves, hares, and ptarmigan were seen in the vicinity of the lake. The most extensive glaciers of this region were named Gilman Abbe and Henrietta Nesmith. The second trip began June 24th. Lieut. Greely was accompanied by Sergt. Linn, and, carrying packs of ninety pounds each, they advanced fifty miles beyond the turning-point of the former trip. They were forced to ford or swim a number of streams, and were exposed to much hardship. Two ranges of mountains were discovered, running nearly parallel with the United States range, which they called respectively Garfield and Conger. The highest peak was called Mount Chester A. Arthur, 5,000 feet in altitude. Lieut. Greely ascended this, and was satisfied that Grinnell Land ended but a short distance westward, with a coast-line extending to the southwest from the extreme point reached by Lieut. Aldrich, R. N., in 1876. Evidences of ancient Esquimau camps were seen in this region. After much suffering and peril, the station was again reached July 15th.

The ice began to break up in Discovery Harbor July 9th, and by August 6th Lady Franklin Bay was practically clear. Greely ran down August 12th with the steam-launch to Cape Cracroft to leave provisions, and could see no ice in Kennedy Channel to the south. Dr. Pavy and Corporal Ellison made an overland trip in the latter part of August from Cape Baird to Carl Ritter Bay, and discovered a large valley extending across Daly Peninsula from Cape Baird to Cape Defosse. Several trips were made by Lockwood in the launch, one to the head of Archer's Fiord, whence he brought twelve musk-oxen, and one to Weyprecht Fiord. In September the hope of relief was given up, and the party settled down to a second winter in their quarters, their supplies being sufficient to occasion no uneasiness. From October 26th to November 5th, Dr. Pavy and Sergeant Brainerd made a trip to Carl Ritter Bay with a dog-team, but discovered no sign of any vessel. The winter was passed much as the first had been, and in February, 1883, preparations began to be made for the retreat. *Caches* of provisions were made at Cape Baird by Brainerd, and at Cape Sumner, Newman's Bay, by Lockwood and others. An attempt was made under Lockwood early in April at further explorations on the north coast of Greenland, but the party was forced to return in six days, having encountered open water and escaping with difficulty from a floe that became detached from the main body of ice. Sergeant Rice and a party of twelve men visited Hall's Rest and returned after six days with the ice-boat Beaumont. April 24th Lockwood, Brainerd, and the Esquimau Fred set out for the interior of Grinnell Land. They traveled to Ella Bay, Arthur Fiord, and their further progress was prevented by the twin glaciers. A mountain 5,000 feet high was seen here which was called Mount Difficulty. Turning back and following the shores of Beatrix Bay, they reached the west coast of Grinnell Land and looked out on the Polar Ocean. They discovered an immense inland glacier, forming the ice-cap of southern Grinnell Land and separated from the northern ice-cap by a belt of land sixty miles wide. This glacier presented a face two hundred feet high, and its surface conformed apparently to that of the underlying land, presenting the appearance of hills and valleys and abrupt peaks. It was called Agassiz Glacier. The farthest western point was reached May 13th, latitude 80° 48′ 39″ north, longitude 78° 26′ west. A cliff 2,200 feet high, containing petrified roots and other fossil remains, was ascended on the 16th, and it was found that the land terminated on the north side in a high headland fifty or sixty miles away, which was called Cape Brainerd. A corresponding headland to the south was called Cape Lockwood. Beyond the latter, and separated from it by open water, was discovered what was supposed to be new land, which was named Arthur Land. After a trying and difficult journey through snow-storms and with short rations, the party reached Fort Conger on the return, May 26th. A six days' trip to the northwest was made by Lockwood and Brainerd in June (13th–19th), without important result. More active preparations were then made for the retreat. The ice began to break up August 4th, and on the 19th the way was open for boats, and the party abandoned their camp with the steam-launch Lady Greely, the whale-boat Narwhal, the jolly-boat Valorous, left at the Cape Hawks by the English and brought by the Proteus in 1881, and the ice-boat Beaumont, leaving the dogs behind, with four barrels of pork and some seal-oil.

By this expedition, exploration of the northern coast of Greenland was carried one degree of latitude and about ten degrees of longitude farther than the point previously attained. From an elevation of 2,000 feet, Lieut. Lockwood could see no land to the north, and it has been concluded by some authorities that Greenland is an island extending little or not at all beyond 84° north latitude. The region of Dr. Hayes's open polar sea was filled with ice-packs. Lockwood, in sounding between Cape Britannia and Cape Bryant, failed to touch bottom with a line of 165 fathoms. The vegetation and animal life encountered at the highest point attained was not different from that before known. The deflection of the magnetic needle was 104° west. The explorations of Greely on Grinnell Land are supposed to establish the fact that it is an island, the western border of which was reached, Grant Land being a peninsula connected with it. Many new features of this region were laid down, including mountains, rivers, and lakes. The highest temperature observed at Lady Franklin Bay was 52° above zero, June 30, 1882, the lowest 66° below, in February, 1883. During the latter month the mercury was frozen, and remained solid for fifteen days. The mercury invariably rose in the thermometer during storms or high winds. The highest barometer was slightly above thirty-one inches, and the lowest slightly below twenty-nine, showing a great range, the greatest variations being in winter. The average temperature of the water was 29° above zero. The highest velocity of wind observed was seventy miles an hour, which occurred during a snow-storm. From the electrometer no results whatever were obtained, much to the surprise of the observer. The displays of aurora were not to be compared with those observed at Disco and Upernavik. The brightest displays were in the southwestern horizon. The general shape was that of a ribbon, and no crackling sound was noticed. Shadows were distinctly seen by its light. There were no electrical disturbances, except a rumbling like distant thunder. It was found that the tides at Lady Franklin Bay came from the north, while those at Cape Sabine came from the south, the former having the higher temperature by 2°. The average rise of spring tides was eight feet at Lady Franklin Bay and twelve feet at Cape Sabine.

As to the results of Arctic exploration, Lieut. Greely said:

> I do not think the north pole can be reached unless every circumstance hitherto found to be unfavorable should prove favorable to the party attempting to reach the pole. If it is to be done at all, it will be done by way of Franz-Josef Land. It could never have been reached by the Jeannette's route. That there is an open polar sea, I am well-nigh certain. This is proved by the ice drifting out of Muscle Bay and Spitzbergen in midwinter, and the northern drift of the polar pack experienced by Pavy and Lockwood in 82° 83'. Men can stand two winters very well at Franklin Bay, but physical strength rapidly deteriorates. If we had had every supply and necessary of food, we could have lived perhaps eight or ten years at Lady Franklin Bay.

When the party left Fort Conger, they left two tons of coal from a supply mined at Water-Course Bay, and eight months' supplies, in case they should be driven to return, relying mainly for provisions on the deposits of the relief expeditions. The records of the expedition, copies of photographs, and four dozen negatives, together with the lighter instruments, including the pendulum, were taken in the boats. The steam-launch towed the other boats, the people and stores being divided among them. After some difficulty with an ice-pack and a narrow escape from a nip, they reached Baird Inlet on the 10th, where three tons of coal and some stores had been left. From that point they proceeded with fifty days' supplies. At Cape Cracroft they took up 48 pounds of corned beef left the previous season and ran on to Carl Ritter Bay. The provisions left there by the Proteus in 1881, 200 rations, and 240 *cachéd* at Cape Cullinson by Nares in 1875, were taken on board. After being frozen in the ice five days, detained by the boats being forced on shore, and narrowly escaping from several "nips," they arrived at Cape Hawkes August 26th. They left a record on Washington Irving Island and obtained a small addition to their supplies in potatoes and pickles from an English *cache*, the bread being mostly spoiled. Leaving the same day, they were soon struggling with the ice-packs and made extremely slow progress for a number of days, suffering intensely from the cold. After being driven to and fro by the gales and tides and drifting ice-floes, they were compelled, Sept. 10th, to abandon the launch and the Valorous, and retreat over the floes with their two remaining boats, two sleds, and their provisions. Two journeys had to be made over the hummocky ice with each sled to convey the provisions and boats, and only about a mile a day could be accomplished. On the 13th they had to abandon the Narwhal, in order to save the larger sled, which was weakening. Driven back and forth by the gales on the crumbling floe, forced to give up their encampment of snow-houses, they succeeded with great difficulty, on the 29th of September, in escaping to the shore on the north side of Baird Inlet, where they began to construct their winter-quarters. Rice and the Esquimau Jens were sent to Cape Sabine to ascertain the condition of affairs, and Long and the Esquimau Frederick were detailed as hunters. Game was very scarce, and only three seals and a few ptarmigan were obtained. Rice returned Oct. 9th with the discouraging news of the result of the Garlington expedition, obtained from records at Cape Sabine, and the scantiness of the supplies awaiting them there. They determined to abandon Esquimau Point, as they had called it, starting the next day. They traveled along a strait discovered by Rice, and called by his name, connecting Rosse Bay and Buchanan Straits, which proved Cape Sabine to be an island. Rice and Jens diverged to Cape Isabella, where 144 pounds of meat were found, left there by the English in 1875. Considering the prospects, rations were reduced Sept. 25th, and the meat allowance was only six ounces. They reached the Proteus wreck *cache*, Oct. 15th, four miles northwest of Cape Sabine, and proceeded to establish there their winter-quarters, calling them Camp Clay. All their supplies were gathered there except one load *cachéd* at Cocked Hat Island. They built a rude hut by piling up stones for a wall about twenty-five feet by seventeen. Over it was placed a whale-boat left by Beebe in 1882 at Starknecht Island, and the rest of the roof was formed by stretching boat-sails and tent-canvas from the boat to the eaves, which were five feet from the ground. Snow was banked up against the walls to keep out the wind. There was barely fuel enough to warm the food. Canvas was stretched on the ground and covered with buffalo overcoats, and on these the sleeping-bags were placed, which were frequently frozen stiff. The only light was derived from an Esquimau lamp, consisting of a single wick dipped in seal-oil. A rude scale was improvised, with cartridges for weights, for the distribution of the scanty rations, which were dealt out by Brainerd. In the latter part of October, Long and the two Esquimaux were stationed at the junction of Rice and Buchanan Straits to obtain game, living in a hut on short rations, and suffering intensely from cold and hunger. They returned Nov. 8th, having obtained only three seals. On the 2d of November, Rice, Linn, Ellison, and Fredericks set out with a small sled to obtain the meat left at Cape Isabella. On the 9th, Rice returned, reporting that the party was at the head of Rosse Bay, suffering severely, and that Ellison was dying. Relief was sent under Brainerd, who, on the 12th, reached them with food and medicine. Ellison was badly frozen and delirious, and afterward lost his feet and hands. Fredericks and Linn had to be cut from their frozen sleeping-bags. With the aid of Lockwood, who had come with a second relief party, the men were got back to Camp Clay, the object of the trip being given up.

From November 1st the rations had been reduced to four and a third ounces meat and blubber, six and a half ounces bread and dog-biscuit, one and two fifths canned vegetables and rice, three fourths butter and lard, nine tenths soups and beef-extract, one ounce cloud-berries, pickles, raisins, and milk. On this basis it was calculated that the supplies would last till March 1st, with ten days' reserve for crossing to Littleton Island, but the gales that prevailed all winter prevented the sound from closing. Efforts were made to keep up cheerfulness by reading over and over again their scanty literature, including scraps of newspaper found in a box of lemons left by Garlington, and by lectures and anecdotes. A show of celebrating birthdays and holidays was also kept up, but nothing could relieve the utter dreariness and apparent hopelessness of the situation. Sergeant Cross died Jan. 18th, of scurvy, it was said. On the 1st of February, Rice and the Esquimau made an attempt to reach Littleton Island, but were compelled to return after six days' absence, having found the water open. The minimum temperature was 50° below zero in January. The supplies were eked out by a few Arctic foxes, dovekies, and ptarmigan shot near the camp. Long, with the Esquimaux, set out March 13th for Alexandria Harbor to look for game, but returned empty-handed in three or four days. Long, on this trip, discovered, from the western side of Mount Carri, three capes in Hazen Sound beyond the farthest reported by Nares. Early in April the food began to consist largely of salt shrimps or sea-flies, of which it took 1,300 to fill a gallon-measure, which contained little nutriment, lichens, sea-weed, saxifrage, and boiled seal-skin, though a trifling amount was still given out from the carefully husbanded supplies. In April a small seal and a bear were shot. On the 4th of April the Esquimau Frederick succumbed, being the first to die of starvation. On the 17th of that month the other Esquimau was drowned, depriving the party of the use of the kyak in recovering game shot in the water. There being no hope of reaching Littleton Island, Rice and Fredericks volunteered to go to Baird Inlet to obtain the English meat supposed to be *cachéd* at a place named Bad Creek, fifteen miles from the camp. They started April 6th, but encountered terrific gales, and on the fourth day Rice died on the ice, of exposure and exhaustion. Fredericks returned to the camp, and went back next day and buried Rice on the ice-floe. From this time the men fell off rapidly from starvation. For several weeks before the rescue no regular rations were served out, and the surviving men spent most of the time in a half-lethargic state in their sleeping-bags. On the 4th of May, the winter hut, which was only six feet above high water, had been abandoned, and the survivers moved up the hill and lived under a tent.

Long and Brainerd were the strongest of the party, and were the first to hear the signal of the steam-launch from the rescuing vessels. All had been without food for twenty-four hours, and all but these two were on the very verge of starvation. They helped each other to crawl out of the tent, and managed to clamber up a little height, but, seeing nothing, Brainerd turned hopelessly back. Long continued to watch until he descried the boat, and then succeeded in raising the signal at the old camp. With tottering steps and glaring eyes he met Capt. Ash as he landed, and, in a few minutes, relief entered the tent of the almost dying party. Connell was recovered with difficulty, and Ellison died after the rescue.

The bodies of the dead, which had been buried near the camp, were exhumed, identified, wrapped up, and packed in ice, until tanks of alcohol could be prepared for their transportation. These were ready in three days, and the bodies were placed in them, wrapped in strips of cotton cloth. On the 23d of June, Lieut. Emory returned from Payer Harbor to the Cape Sabine camp, and made a careful examination of the neighborhood, and, on his return, the ships crossed to Littleton Island. The vessels were subsequently brought together at Disco, and set out thence for St. John's, as already related. With the exception of the collier, Loch Garry, the vessels were detained at St. John's until iron caskets could be provided for the dead, and memorial services were held in the churches of that city on Sunday, July 20th. Sick-leave was granted to the men of the Greely party, who were all progressing favorably, and the vessels were directed to rendezvous at Portsmouth. They left St. John's July 26th, and arrived at Portsmouth Aug. 1st. They were met there by Secretary Chandler, and Gen. Hazen and other visitors, and a touching scene occurred when Lieut. Greely's mother and wife were brought on board the Thetis. The party were transferred to comfortable quarters in the city of Portsmouth, and on the 4th of August a public demonstration of welcome took place. Those in whose honor it was chiefly given were unable to join in the procession, but were present at the reviewing stand at the Rockingham House. Their weakness would not permit of their presence at a public meeting, which was held at the Music Hall, where an address of welcome was delivered by the mayor of the city. Secretary Chandler gave the audience an account of the services of Greely and his men, and of the efforts for their relief and rescue, and complimentary addresses were made by Gov. Hale, of New Hampshire; the Hon. S. J. Randall, of Pennsylvania; Gen. Hazen, and others. The vessels of the Relief Expedition left Portsmouth for New York, Aug. 5th, and arrived there with the remains of the dead on the evening of the 7th. The bodies were landed on the 8th at Governor's Island, with appropriate ceremonies, there to be delivered into the charge of sorrowing friends and relatives. Eleven iron caskets were placed side by side in the military hospital, each bearing the name of the occupant. The bodies of Privates Henry and Snider were unclaimed, and were sent to Cypress Hills Cemetery for burial. That of Lieut. Lockwood was sent to friends at Annapolis; that of Lieut. Kislingbury to Rochester, N. Y.; Sergt. Israel's to Kalamazoo, Mich.; Sergt. Ralston's to Howard, Ohio; Sergt. Linn's to Philadelphia; Sergt. Cross's to Washington; Private Whistler's to Delphi, Ind.; Corp. Ellison's to Pottsville, Pa.; and Private Ellis's to Clyde, N. Y. Lieut. Greely employed his sick-leave in visiting friends and relatives at Newburyport, Mass., where a public reception was given him, Aug. 14th, and the other survivors were left at liberty until two of them were reported to have made a contract for public exhibitions at museums, when they were peremptorily ordered to report for duty.

Almost immediately after the bodies of the dead had been disposed of, the fact became public that, when found, the fleshy portions of several of them had been cut away, and it was inferred that they had been used for food by the desperate survivors. This was neither admitted nor denied at the time by any of the officers of the expedition, though Lieut. Greely declared that, if anything of the kind occurred, it did not come to his knowledge. There was also a report of dissensions among the men at Cape Sabine, and a division into two factions, but this was denied and could not be verified. The statement in regard to the treatment of the bodies of the dead was proved in the case of Lieut. Kislingbury by the exhumation and examination of the remains, at Rochester, under the direction of medical experts; and in his official report Commander Schley said:

> In preparing the bodies of the dead for transportation in alcohol to St. John's it was found that six of them, Lieut. Kislingbury, Sergts. Jewell and Ralston, Privates Whistler, Henry, and Ellis, had been cut, and the fleshy parts removed to a greater or less extent. All other bodies were found intact.

The fact had also become known that Private Henry did not die a natural death, but had been shot. In regard to this, Lieut. Greely promptly made a report declaring that Henry had been shot by his orders, and after reiterated demands from his men, for persistently stealing from the meager supply of provisions on which the lives of all the men equally depended. The lieutenant asked for a court of inquiry or a court-martial to examine into the matter, in case it was deemed advisable by the Secretary of War. No order for this purpose was given. The controversy in regard to the responsibility for the failure of the expedition of 1883 was renewed after the rescue of the survivors. Gen. Hazen in his annual report said: "Up to the return of the expedition this year, I had hoped there would be no occasion for raising the question of blame at this or any future time. But new light has been cast upon the subject and with it my duty becomes plain, and the truth of history and justice to all call for such impartial inquiry and authoritative judgment as a tribunal broad enough to embrace the whole question shall institute and pronounce, and the Congress of the United States is manifestly such a tribunal. . . . I therefore trust that this whole matter of the Lady Franklin Bay expedition and the expeditions organized for its relief will be deemed worthy of a thorough investigation by Congress." Gen. Hazen insisted that both Lieut. Greely in the Arctic, and the Signal Bureau in Washington, carried out their part of the prearranged plans of rescue literally and successfully in every particular. He referred to the failure of Lieut. Garlington to replace the spoiled provisions at Cape Sabine, and quoted from a letter by Lieut. Greely to him April 30th, supposing himself at the point of death, as follows: "Had Lieut. Garlington carried out your orders and replaced the 240 rations of rum and 120 alcohol in English *cache* here, and the 210 pounds moldy English bread, spoiled English chocolate and potatoes, melted sugar, and the 210 pounds of rotten dog-biscuit, we would without doubt be saved."

ARGENTINE REPUBLIC, an independent republic of South America: area, 1,168,682 square miles; population (as officially estimated in September, 1882), 2,942,000*; and that of the capital, Buenos Ayres, 295,000.

Immigration.—The following table exhibits the nationality and number of the immigrants landed at Buenos Ayres in the years 1880, 1881, 1882, and 1883:

NATIONALITIES.	1880.	1881.	1882.	1883.
Italians	18,416	20,506	29,587	37,043
Spaniards	3,112	3,474	3,520	5,023
French	2,175	3,612	3,382	4,286
English	588	1,149	826	591
Swiss	581	685	948	1,298
Germans	445	591	1,128	1,394
Austrians	579	495	673	1,057
Portuguese	34	73	108	186
Belgians	57	140	183	353
Danes	54	11	11	37
Dutch	..	10	5	9
Russians	8	34	26	23
Greeks and Turks	11	28	14	34
Americans	21	72	226	108
Various	292	648	410	755
Total	26,643	31,468	41,041	52,472

Government, Public Offices, etc.—By the terms of the Constitution, bearing date of May 15, 1853, with modifications in 1860, the executive power is vested in a President, elected for six years by representatives of the fourteen provinces, equal to double the number of senators and deputies combined. The President is commander-in-chief of the army, appoints all civil, military, and judicial office-holders, and has the right of presentation to bishoprics. He is solely responsible for the acts of the executive. The legislative power resides in a National Congress consisting of a Senate and a Chamber of Deputies. The senators, twenty-eight in number, elected by the provincial Legislatures, must have completed thirty years of age, have been citizens for at least six years, and have an income of not less than $500 per annum. One third of the Senate is renewed every three years. The deputies, eighty-six in number, elected for four years, must be at least twenty-five years of age, and have been citizens for not less than four years. Both senators and deputies are paid a yearly salary of $3,500 each. Both houses assemble annually from May 1st to September 30th. A Vice-President, elected in the same manner and at the same time as the President, fills the office of chairman of the Senate, but has otherwise no political power.

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* For details of area, population, etc., reference may be made to the "Annual Cyclopædia" for 1883.

The President of the Republic is Lieut.-Gen. Don Julio A. Roca (inaugurated Oct. 12, 1880), and the Vice-President, Don Francisco Madero.

The Cabinet was composed of the following ministers: Interior, Don Bernardo de Irigoyar; Foreign Affairs, Don Francisco Ortiz; Finance, Don Victorino de la Plaza; Justice, Public Worship, and Public Instruction, Don Eduardo Wilde; War and the Navy, Gen. Benjamin Victorica.

The Governors of the several provinces, etc., were:

Buenos Ayres	Dr. D. Rocha.
Catamarca	Don J. Acuña.
Córdoba	Don G. Gavier.
Corrientes	Don A. Soto.
Entre-Rios	Col. J. Antelo.
Jujuy	Don E. Tello.
La Rioja	Don B. Jaramillo.
Mendoza	Don J. E. Segura.
Salta	Don M. S. Ortiz.
San Juan	Don A. Gil.
San Luis	Don Z. Concha.
Santa Fé	Don M. Zavalla.
Santiago de Estero	Don L. G. Pinto.
Tucuman	Don B. Paz.
Gran Chaco Territory	Col. F. Bosch.
Patagonia	Col. L. Winter.
Missiones	Col. R. Roca.

The Argentine Envoy Extraordinary and Minister Plenipotentiary to the United States is Dr. Don Luis L. Dominguez (accredited in 1882); and the Argentine Consul-General at New York is Don Cárlos Carranza.

The United States Minister Resident in the Argentine Republic is Gen. Thomas O. Osborn; and the United States Consul at Buenos Ayres is E. L. Baker.

Army.—The Argentine army in May, 1884, exclusive of the National Guard, was 6,579 strong, comprising 3,209 foot, 2,320 horse, and 1,050 artillery. If to this be added the Indian and recruit pickets, and the students at the military schools, aggregating 3,008, the total strength will stand at 9,587. In June, 1883, there were 4 lieutenant-generals, 14 generals of divisions, 50 colonels, 127 lieutenant-colonels, 142 majors, and 742 officers of other grades. At that time the National Guard was 315,850 strong. In 1882 the military academy had 14 instructors and 148 students; and the military school (for non-commissioned officers) 6 instructors and 68 students.

Navy.—The navy, in June, 1883, was composed of 39 vessels, namely: 3 steam-ironclads, 6 gunboats, 7 torpedoes, 2 steam-transports, 3 cruisers, 6 other steam-vessels, and 12 sail-of-the-line, with an aggregate tonnage of 12,630, and an armament of 55 guns, and manned with 320 officers, 1,505 seamen, 1,737 marines (including officers), and a torpedo division 137 strong. In the foregoing enumeration is not included the flotilla of the Rio Negro, comprising 3 steamers and 3 steam-launches.

In 1882 the naval school consisted of 17 instructors and 69 students; another school (for seamen) had 9 instructors and 43 students.

The navy, like the army, is recruited by voluntary enlistment for a stated period.

Education.—According to the school census of 1883–'84, there were within the republic 2,023 primary schools, national, provincial, municipal, and private, with 3,761 teachers and assistants, and 146,325 pupils, including both sexes, the total number of children between the ages of five and fourteen years being 503,591. These figures show a considerable improvement as compared with those for 1881, in which year the aggregate attendance was but 136,928, while the number of children fit to attend school was estimated at 500,000. The annual expenditure by the Federal Government for those schools, as given in the census, was $2,444,187.84. Higher branches of instruction were pursued in the two Universities of Buenos Ayres and Córdoba, special schools of law, medicine, theology, and military and naval schools, fourteen national colleges (with their nine annexes), and eighteen normal schools.

Finance.—In the budget for 1884 the national revenue and expenditure were estimated at $33,770,333 and $34,053,484 respectively, with a resulting deficit of $283,151. "At the end of the present year (1883), the 6 per cent. consolidated debt, with a small portion at 8 and 9 per cent., will have been reduced to $75,418,201.31."*

Commerce.—The imports for the year 1882 were of the value of $76,328,283 (including the trade *in transitu*, amounting to $17,057,917), fully one third having been for British, and but one twelfth for American products.

The value of the exports for the same year was $75,498,822 (including $17,057,917 *in transitu*), of which about $16,000,000 was to France, $14,000,000 to Belgium, $7,400,000 to Great Britain, and but $2,861,209 to the United States.

The sources, destinations, and values of the imports and exports through Buenos Ayres for the nine months, January to September, 1884, were as follow:

IMPORTS.

FROM	Values.	FROM	Values.
Belgium	$3,870,856	Portugal	20,389
Brazil	1,744,694	Spain	3,340,786
Canada	48,393	Sweden	15,278
Chili	3,888	United States	3,912,811
France	10,081,771	Uruguay	2,180,332
Germany	3,592,983	West Indies	801
Great Britain	20,270,328	Other sources	25,402
Holland	618,981		
Italy	2,830,278	Total	$54,675,442
Paraguay	618,526		

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* President Roca, in his message, May, 1883.

EXPORTS.

TO	Values.	TO	Values.
Belgium	$10,100,874	Portugal	8,981
Brazil	548,163	Spain	542,294
Chili	86,922	United States	1,187,297
France	1,549,445	Uruguay	1,699,018
Germany	4,460,606	Other destinations	227,509
Great Britain	1,908,730		
Italy	1,241,696	Total	$37,541,974
Paraguay	86,151		

Shipping Movements.—The shipping movements at the various ports of the republic were as follow in 1883:

	Tons.
ENTERED:	
Steamers, 3,626, with an aggregate of	1,437,018
Sailing-vessels, 3,445, with an aggregate of	517,070
CLEARED:	
Steamers, 3,172, with an aggregate of	1,318,201
Sailing-vessels, 2,263, with an aggregate of	424,124

COASTING AND FLUVIAL TRADE.

ENTERED:	
Steamers, 6,041, with an aggregate of	1,545,648
Sailing-vessels, 16,411, with an aggregate of	517,700
CLEARED:	
Steamers, 6,041, with an aggregate of	1,515,148
Sailing-vessels, 16,335, with an aggregate of	550,844

The distribution of this trade by flags was: Argentine, 54 per cent.; French, 29; British, 7; Uruguayan, 3; Italian, 2; others, 5.

Railways.—At the end of 1883 there were 2,950 kilometres of railway in operation, and 2,567 in process of building.* "The locomotive-whistle was heard for the first time in the province of Santiago del Estero on Oct. 12, 1884." The horse-car lines of the capital, at the end of 1882, covered an aggregate of 95 miles, and, with 1,001 employés, carried an average of 51,740 passengers daily. There were also lines in some of the smaller towns of the province of Buenos Ayres, and the city of Córdoba had two lines, and Rosario one.

Telegraphs.—In January, 1883, the telegraph lines of the republic were of the total length of 13,543 kilometres, of which 10,772 were Government property; the number of offices was 202; and that of the dispatches transmitted during the year immediately previous, 438,090, of which 71,838 were official.

The total number of dispatches for 1883 was 496,726, of which 71,460 were official. At the end of 1882 there were in Buenos Ayres two telephone companies, with 1,500 subscribers.

Post-Office.—In 1882 there were transmitted through this department 17,500,000 letters, postal-cards, and packages of printed matter. The exchange of correspondence, etc., with foreign countries in 1883 was as follows: Letters, 2,207,000; printed matter, 1,400,000. The number of registered packages was 93,313. The yield of the Post-Office Department in 1883 was $538,514.83.

Improvements.—Chief among these, besides the already well-advanced work at canalization of the Riachuelo of Buenos Ayres to fit it for craft of all sizes, may be mentioned the extension of pipes for the supply of potable water in that city.

ARIZONA. Territorial Government.—The following were the Territorial officers during the year: Governor, Frederick A. Tritle; Secretary, H. M. Van Arnam; Treasurer, T. J. Butler; Chief-Justice of Supreme Court, Sumner Howard; Associate Justices, A. W. Sheldon and Daniel H. Pinney.

Political.—A Republican Territorial Convention was held in Phenix on the 15th of April to select delegates to the National Convention. Another convention of the same party was held in Tombstone on the 15th of September, which nominated C. C. Bean for delegate to Congress, and R. L. Long for Superintendent of Public Instruction. Among the resolutions adopted were the following:

> That we with pleasure confirm the action of the National Republican Convention in recommending that all Federal appointments to the offices of the Territories of the United States be made within the Territories themselves, recognizing the fact that citizens of the Territory are best qualified to discharge the responsible duties appertaining to such positions.
>
> That we recognize the depressing influence of the many old fraudulent claims to large grants of land within our Territory; and we demand from our delegate in Congress that he use his best efforts in securing united action with the Representatives of all States and Territories interested in obtaining from Congress such action as shall speedily settle and quiet all such claims.
>
> This convention favors any and all measures that will tend to bring labor and capital, organized and unorganized, into the Territory of Arizona. Equality before the law is the fundamental principle of the Republican party of the nation, and we pledge the Republican party to such a course of legislation as will extend to corporations and corporate capital in Arizona the same protection and the same laws accorded to individuals to perform their just share of the labor and to pay their just share of the taxation we pay to carry on the Government, making the same rules apply to corporations as to individuals.
>
> That in our opinion there is too much money appropriated for the support of hostile Indians to permit of a speedy and just settlement of this vexed question. We believe that a tribe of hostile savages should not be kept in our midst, fed and supported out of the public treasury; we therefore recommend that the safety and protection of the frontier settlers be made the first object in all Territorial and Federal legislation affecting the Indians. We are in favor of the disarmament of all Indians in this Territory as indispensable to the safety of our people.
>
> That we are in favor of reducing the size of the White Mountain and San Carlos Indian Reservations, and especially are we in favor of segregating the coal-fields therefrom, and throwing open all reservations for the prospecting of minerals and for the locating and working of mineral claims.
>
> That we condemn the practice of polygamy and bigamy as a crime, and favor the passage and enforcement of such laws as will prevent the continuance of such practice within this Territory.
>
> That we demand the passage of such quarantine and other laws by the coming Legislature as shall enable the officers of the law and owners of live-stock to protect this great industry from the ravages of contagious diseases.

School Population.—The number of children of school age is 9,376, as follows:

Pima County	2,817	Yuma County	649
Yavapai County	1,852	Graham County	685
Maricopa County	1,817	Pinal County	684
Apache County	1,126	Gila County	179
Cochise County	1,018	Mohave County	154

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* A list of the several lines was given in the volume for 1883.

General Condition.—The year has been a prosperous one for Arizona. Says the Governor, in his report of Oct. 25, 1884:

> Our population has been steadily increasing; the development of our material wealth embraced in mining, grazing, and agriculture has shown marked advancement; our border relations have been harmonious; the annoyances of government have been lessened; there has been absolute freedom from the depredations of hostile savages, which in previous years have been such a menace to the progress of our civilization; and although the lawless elements of society peculiar to advanced frontiers have in several instances during the year committed deeds of exceptional atrocity within the boundaries of Arizona, the outlaws have in most cases expiated their crimes by the severest penalties known to the law, and the civil officers of the Territory are to be congratulated upon the general success that has attended their efforts in maintaining order and improved social conditions.

Mining.—The Governor says:

> The product of our mines has been considerably less for the past year than for the preceding twelve months. Several large bullion-producing properties have been lying idle a considerable portion of the year, owing, it is stated, to the heavy expense of operating, high transportation rates, and a depreciation in the grade of the ore being treated. While the ores of Arizona are undoubtedly of a higher average than those of Colorado or other localities with which comparisons can be made, the 'expense of mining, and especially of transportation, is much greater. These obstacles, however, are being steadily reduced, and all things being equal, her marvelous mineral deposits will soon enable Arizona to rank first among the bullion-producing States and Territories of the Union.

Grazing.—

> The grazing interests of the Territory have largely increased during the year; extensive importations of improved breeds of cattle and horses have been made into Arizona. There has been an entire absence of epidemic diseases among cattle and horses in the Territory, and the loss per year is only about three per cent. Much of the 60,000 square miles of grazing-land in Arizona, though bountifully covered with rich grasses, can not be utilized at present for grazing purposes on account of the absence of water. It is believed, however, that this drawback can be largely, if not almost completely, remedied by the introduction of artesian water. Where the experiment has been tried, in Sulphur Spring Valley, Cochise County, the result is most satisfactory, "sufficient water having been obtained in this way to water at least 80,000 cattle, besides affording sufficient irrigation to maintain the gardens that a population attending to this stock would require, and perhaps tree-plantations for the relief of stock from sun and wind." There are now in the Territory about 800,000 head of stock, with probably good pasturage, under present conditions, for 1,000,000 more.

Agriculture.—The Governor says:

> The yield per acre of wheat and barley is from twenty-five to thirty-five bushels, and, after this is harvested, corn can be planted on the same ground and a fine crop raised the same season. Apples, peaches, pears, plums, figs, quinces, apricots, and nearly every other variety of fruit, yield largely. Lemons, oranges, and olives can be raised with profit, and finer grapes can not be produced anywhere. Sugar-cane and cotton have also been grown successfully. There are numerous fertile valleys throughout the Territory in every direction where considerable farming is done. Irrigation is necessary to insure good crops in nearly every locality, although in a few of the northern valleys the sub-irrigation is sufficient from the rainfall during the wet season. In the Salt River Valley an immense canal is being constructed which will convey water enough, it is claimed, to reclaim at least 100,000 acres, besides furnishing motive power for an immense amount of machinery. This canal is expected to be ready for use early in the spring of 1885. In connection with agricultural pursuits hog-fattening and pork-packing bids fair to become ere long an exceedingly profitable business. But little work is required in fattening; the hogs run on the alfalfa-fields and keep in good order until the grain is harvested, and they are then turned upon the grain stubble-fields.

Land Grants.—Uncertainty regarding the final disposition of lands granted to the Atlantic and Pacific and Texas Pacific Railroads by Congress is preventing the settlement of Arizona to a great extent. The Governor urges a determination by Congress of the question whether the railroads or the Government own the lands referred to.

There are numerous alleged Mexican grants in the Territory, the title to which, in many cases, is believed to be fraudulent, either as to the grant itself or the proposed boundaries. The Governor asks that immediate action be had to determine these titles, so that the lands may be properly improved, and add to the taxable value of the property of the Territory.

Timber.—The immense timber region of northeastern Arizona is commanding recognition. Lumber is being manufactured and shipped into southern California in successful competition with the timber districts and mills of the North Pacific coast; it is also finding a profitable market in various portions of the middle Southwest and South into the Republic of Mexico.

Railroads.—Two railroads have been projected from north to south in the Territory, the Arizona Mineral Belt and the Central Arizona Railroad. The former has been surveyed from Winslow and Flagstaff, on the Atlantic and Pacific road, to Globe, in Gila county, connecting at Globe with a road from Tucson, a distance of 220 miles, through an extensive timber, mineral, agricultural, and grazing region. The Central Arizona has been surveyed from Chino Station, also on the Atlantic and Pacific, 154 miles west of Winslow, to Prescott, the capital; from here it is proposed to continue it south to the rich valleys of the Salt river and Gila.

Mormonism.—There has been extensive immigration to the Territory during the past few years of Mormons who, it is alleged, are practicing polygamous marriage. A strong opposition is developing among the citizens against this class of Mormon immigration, and in some localities, notably Apache county, citizens are arrayed against each other upon this subject—Mormons and Gentiles—which, unless the legal remedy is applied and polygamous relations prohibited, may result in such a conflict as will cause the loss of life and destruction of property. A number of Mormons are under indictment.

Other Matters.—The Governor asks Congress for assistance in improving the school system, the taxation for which is burdensome upon the citizens of the Territory. There are over 10,000 children of school age, and in many sparsely settled localities it is difficult to provide for their education. He urges the acquisition by the Government of the valuable coal and mineral lands on the San Carlos Reservation. He also points out the need of a fourth judge.

Election.—The election on the 4th of November resulted in the choice of the Republican candidates for delegate to Congress and Superintendent of Public Instruction. The vote for delegate was as follows: Republican, 6,820; Democratic, 5,671.

The Legislature, according to the latest report, will stand as follows: Council—Republicans, 6; Democrats, 5; Independent, 1. House—Republicans, 12; Democrats, 11; Independent, 1.

ARKANSAS. Elections.—The Republican State Convention assembled in Little Rock on the 8th of April, and, after passing a complimentary resolution commending the administration of President Arthur, electing delegates to the Republican National Convention, and authorizing the Central Committee to place before the public a State ticket, adjourned. The committee met on the 15th of August, and nominated the following ticket:

Thomas Boles, Governor; Paul Graham, Secretary of State; S. A. Duke, Treasurer; J. R. Berry, Auditor; Jacob Tricher, Attorney-General; J. A. Barnes, Commissioner of State Lands; T. B. Ford, Superintendent of Public Instruction; W. N. May, Chancellor; W. W. Hughey, Chancery Clerk.

The Democratic State Convention assembled at the capital on the 25th of June, and nominated the following ticket:

Simon P. Hughes, Governor; E. B. Moore, Secretary of State; W. E. Woodruff, Jr., Treasurer; A. W. Files, Auditor; D. W. Jones, Attorney-General; Paul M. Cobbs, Commissioner of State Lands; Wood E. Thompson, Superintendent of Public Instruction; D. W. Carroll, Chancellor; J. W. Callaway, Chancery Clerk.

With the exception of Governor, Secretary of State, and Attorney-General, the present incumbents were renominated. After electing delegates to the National Democratic Convention, uninstructed except to vote as a unit, the convention adopted a platform from which the following are extracts:

> We hold there can be no conflict between the Federal and State governments in the exercise of their legitimate functions, and are unalterably opposed to the assumption of power upon the part of either, without constitutional warrant; for which reason we condemn the tendency of the Republican party to centralize all power in the Federal Government.
>
> We favor reform and retrenchment in the public service, and declare our adhesion to the Democratic party upon the subject of the tariff, holding that the grant to Congress by the Constitution to lay and collect imposts was intended to raise revenue, and forbids the opposing policy of the Republican party of fostering one branch of industry to the detriment of another, and the promotion of the interests of some to the injury of other portions of our common country. And we demand a material reduction of the present excessive tariff duties, and such revision of the laws imposing them as will equalize the burdens and benefits derived from their levy and collection, and that no more revenue from all sources should be collected than is necessary for a wise and economical administration of the government.
>
> We approve the action of the Legislature in resubmitting the proposed amendment to the Constitution of the State with respect to the railroad aid, Holford, and levee bonds, and relegate the question to the people as a non-political issue, to be voted on in accordance with each voter's conviction of right.
>
> We are in favor of legislation which fosters equally the manufacturing and agricultural industries of the State, oppose all discriminations whatever, and recommend the enactment of liberal laws to encourage immigration, the construction of railroads, and the development of our rich mineral and timber resources; but all grants of corporate powers and franchises must be guarded against abuse, and held subject to the regulating power of the people.
>
> We reaffirm our devotion to the cause of education, and will uphold and maintain our free common schools by voluntary taxation; and we pledge in behalf of a cause so essential to the happiness and liberty of the people the fostering care and aid of the State.

At the State election, held on the first Monday in September, the entire Democratic ticket was elected by majorities of about 45,000.

The State Senate consists of 32 members, of whom 29 are Democrats, 1 Independent Democrat, 1 Republican, 1 Greenbacker. The lower House of the Legislature has 94 members: 77 Democrats, 15 Republicans, and 2 Greenbackers. The Legislature meets on the second Monday in January.

On the 1st of September, Chief-Justice E. H. English died. He had occupied the place for twenty-five years. For the vacancy the Democrats nominated Sterling R. Cockrill, Jr., and the Republicans M. W. Benjamin. A special election was ordered for the 4th of November, and Mr. Cockrill received 72,215 votes, and Mr. Benjamin 50,452.

The result of the vote for President was as follows: Cleveland, 72,927; Blaine, 50,895; Butler, 1,847. There was no electoral ticket in the field for St. John. The five Congressmen elected are all Democrats.

License.—Arkansas has a law that permits each county to determine for itself whether liquor shall be sold within the county during the ensuing two years after a general State election. At the September election seven counties voted against license, viz.: Ashley, Columbia, Franklin, Garland, Johnson, Logan, and Pope. The remaining sixty-eight voted for license. The total vote for license in the State was 91,926; against, 44,873; majority for license, 47,053.

Bonds.—Another important question voted upon at this election was a proposed amendment to the State Constitution forever prohibiting the General Assembly from providing for the payment of any of the bonds of the State known as "Railroad Aid," "Levee," and "Holfords." Under an act of the Legislature passed on the 8th of July, 1868, submitted to and ratified by the people almost unanimously at the November election that followed, the bonds of the State were authorized to be issued to the extent of $11,000,000 to aid in the construction of railroads. The act further provided that the roads should pay the interest and principal of the bonds, and in default of either they were to be seized by the State Treasurer, and their income and revenues sequestered. .Bonds were issued to the extent of $5,350,000 to the following roads: Memphis and Little Rock, $1,200,000; Little Rock, Pine Bluff and New Orleans, $1,200,000; Mississippi, Ouachita and Red River, $600,000; Arkansas Central, $1,350,000; Little Rock and Fort Smith, $1,000,000. Defaulting in the payment of interest in 1873, the roads were seized and managed by the State until May, 1874, when the Legislature passed an act repealing the sequestration law, and the roads were turned over to the owners. The question as to the validity of these bonds, and the liability of the State therefor, came before the Supreme Court of the State in 1877, and that tribunal held that the act under which they were issued was unconstitutional and the bonds void. (See State of Arkansas *vs.* Little Rock, Mississippi River and Texas Railway, 31 Ark., 701-722.) In 1882 William H. Tompkins, of New York, one of the bondholders, filed a complaint, in equity, in the Circuit Court of the United States for the Eastern District of Arkansas, against the Little Rock and Fort Smith and the Little Rock, Mississippi River and Texas Railway Companies, in which he sought to hold the roads liable for the bonds issued to them. To this complaint a demurrer was filed, setting up the unconstitutionality of the act under which the bonds were issued, their void character, and that no lien attached to the roads for their payment. This demurrer was overruled by United States Circuit Judge McCrary and United States District Judge Caldwell, who held the roads liable. Argument on the merits of the controversy was had at Keokuk, Iowa, before Hon. Samuel F. Miller, of the Supreme Court of the United States, and Hon. H. C. Caldwell, United States Judge for the Eastern District of Arkansas, in June, 1883. Judge Miller, in October following, filed an opinion in which he held that there was no lien against the roads, and consequently they were not liable; while Judge Caldwell filed an opinion holding that they were. In June, 1884, the case was appealed to the Supreme Court of the United States, where it is now pending.

The levee bonds, to the amount of $3,000,000, were issued under an act of the General Assembly of 1868, which authorized the building of levees and the drainage of swamp and overflowed lands. In 1878 the Supreme Court of the State decided that these bonds were void because the act under which they were issued was not passed in accordance with the provisions of the Constitution. (See Smithee *vs.* Garth, 33 Ark., 17.) The Constitution under which the act was passed required that the yeas and nays be recorded on the final passage of each bill. In this instance the yeas were recorded in the House, but the names of the nays, through an oversight of the clerk, were not. On this ground the bonds were declared invalid.

The history of what are known as the Holford bonds was thus given in a speech by Hon. J. N. Smithee, ex-Commissioner of State Lands:

> In 1837 or 1838, the Legislature of Arkansas provided for an issuance of $3,000,000 in bonds, for the establishment of a bank, to be known as the Real Estate Bank of Arkansas. Under the charter, the bonds issued to it could not be disposed of except at par; and all of them were disposed of in that manner, except five hundred of $1,000 each, which were issued to aid in the establishment of a branch at the town of Van Buren. These five hundred were hypothecated, with a certain banking firm in New York, for a loan of $250,000. Of this $250,000 the bank received $121,000. Before it had received the remainder of the loan the New York bank suspended; but, in the mean time, had transferred the bonds to a banking-house in England—James Holford & Co.—for a loan of $350,000. Soon after this the Real Estate Bank suspended, and Mr. Holford found himself with these five hundred bonds, for which he had paid $350,000. Learning of the suspension of the New York bank, Mr. Holford visited Arkansas and brought the matter to the attention of Governor Yell. Governor Yell refused, in official communications, to recognize the bonds held by Holford in any shape whatever. Subsequent Governors, however, did recognize the claim, to the extent of the amount of money obtained by the bank, that is, $121,000; and the Supreme Court of the State, in the case of Peay *vs.* Whitney, 24 Ark. Rep., said that it may be held, in well-adjudicated cases, that the State was bound for the amount of money the bank received.

Under an act of the General Assembly, passed in 1869, these five hundred bonds were recognized as a part of the State's indebtedness, and were funded, principal and interest, along with the remainder of the original $3,000,000 issued, and interest was paid on them up to 1873. It was contended by the opponents of the funding measure that the State was only liable for the actual amount of money obtained by the Real Estate Bank—$121,000, with interest; whereas the entire five hundred bonds with interest were funded. These bonds are embraced in the constitutional amendment. The total amount of bonds and interest outlawed by this amendment is about $12,000,000.

Under the present Constitution of Arkansas, an amendment to the Constitution of the State, before it can be adopted, must receive a majority of all the votes cast. As this amendment failed to receive such majority in 1880, the Legislature, in 1883, again submitted it, and it was voted on at the September election in 1884. The official returns are made to the General Assembly, and will not be opened until the second Monday in January, 1885. From unofficial but trustworthy sources, in seventy counties, it is ascertained that the proposed amendment received 115,253 votes to 14,284 against it; and the remaining five counties—Arkansas, Baxter, Cross, Lincoln, and Little River—are known to have swelled the majority. The total vote of the State was 157,462; the amendment has been adopted.

Indebtedness.—The State now owes the following undisputed debt:

Bonds drawing 5 per cent. interest....	$22,000
Bonds drawing 6 per cent. interest................	2,291,000
Bonds drawing no interest	8,100
Interest overdue and unpaid.......................	2,108,043
Aggregate principal and interest.............	$5,108,043

Sufficient funds are in the treasury to redeem the $8,100 non-interest-bearing bonds not yet presented for redemption. There will be in the treasury on the 1st of January, 1885, about $250,000. The bonded debt outstanding is composed of the original $3,000,000 authorized to be issued for the establishment of a Real Estate and State banks, from which the $500,000 Holford bonds are to be deducted. Most of these bonds are funded under the act of 1869, and the interest is paid up to 1873. The question of a new funding act, by which all this indebtedness is to be refunded in a new bond, will occupy the attention of the incoming Legislature.

Wealth of the State.—In 1883 the taxable property of the State was $126,862,392. The assessment for 1884 will show an increase of about $5,000,000. This is based on official returns from fifty-three out of the seventy-five counties in the State.

Population.—Immigration has steadily poured into the State during the year, the population now being estimated at 1,000,000.

Crops.—From crop statistics made to the Secretary of State, it is ascertained that a much larger acreage was planted during the year than in 1883, and the yield was greater by one fourth, both of cotton and corn. The autumn season was exceptionally fine for the gathering of cotton, and the staple was exceedingly good.

Public Lands.—The Commissioner of State Lands reports that the State now has for disposal 80,000 acres of swamp and overflowed, and 2,000,000 acres of lands forfeited for the non-payment of taxes. The former are disposed of at one dollar an acre, the latter at fifty cents an acre, or, upon occupation and settlement, each head of a family can have 160 acres by simply paying an office-fee of five dollars.

ASSOCIATIONS FOR THE ADVANCEMENT OF SCIENCE. American.—The thirty-third meeting of the American Association for the Advancement of Science was held in Philadelphia, Sept. 4 to Sept. 11, 1884. Owing partly to the recent meeting of the British Association, it was more largely attended than ever before. Prof. C. A. Young, of Princeton, the retiring President, was succeeded by Prof. J. P. Lesley, of the University of Pennsylvania. At the opening meeting the necrological list for the year, and the list of proposed new members, the contributions received, etc., were read. The principal gift was one of $1,000 from Mrs. Elizabeth Thompson, of Stamford, Conn., to be expended in researches in heat and light. Governor Pattison, of Pennsylvania, delivered the address of welcome. A short history of the Association was given by Prof. Young. It was founded in 1840, as a geological society, under the presidency of Prof. Hitchcock. The name was soon changed to American Association of Geologists and Naturalists, and in 1847 its present title was adopted. During the civil war no meetings were held. For this meeting the following were the sections of the society, with their presidents and vice-presidents:

A. Mathematics and Astronomy—H. T. Eddy, of Cincinnati; G. W. Hough, of Chicago.

B. Physics—John Trowbridge, of Cambridge; N. D. C. Hodges, of Salem.

C. Chemistry—John W. Langley, of Ann Arbor; R. B. Warder, of North Bend.

D. Mechanical Science—R. H. Thurston, of Hoboken; J. Burkitt Webb, of Ithaca.

E. Geology and Geography—N. H. Winchell, of Minneapolis; Eugene A. Smith, of Tuscaloosa.

F. Biology—E. D. Cope, of Philadelphia; C. E. Bessey, of Ames.

G. Histology and Microscopy—T. G. Wormley, of Philadelphia; Romeyn Hitchcock, of New York.

H. Anthropology—E. S. Morse, of Salem; W. H. Holmes, of Washington.

I. Economic Science and Statistics—John Eaton, of Washington; C. W. Smiley, of Washington.

The reading of papers, of which over 200 were announced, and of which 304 were finally read, was begun immediately on the opening of the sessions of the sections. Five sections met daily at 2.30 P. M., and the remaining four at 4 P. M. The papers of Prof. Langley on "The Study of Chemical Affinity," of Prof. Eddy on "The Modern Teaching of Mathematics in our Universities," and of Prof. Winchell on "The Geology of the Crystalline Rocks of the Northwest," were among the important papers of the first day. On the second day, in the Anthropological Section, much attention was excited by a paper read by Mrs. Alice C. Fletcher on the habits and customs of the Omaha Indians. On this and succeeding days several papers in this section were read by ladies. In Section E, an interesting paper was read by Prof. J. E. Hilgard on "The Relative Level of the Atlantic Ocean and Gulf of Mexico, with Remarks on the Gulf Stream and Deep-Sea Temperature." In it the difference of level of the ocean at the mouth of the Mississippi and at Sandy Hook, N. J., was stated to be forty inches. This was regarded as a startling assertion, requiring the high authority of its author to sustain it. Other more technical papers were read in the other sections. At a general meeting in the forenoon Prof. Minot presented a petition, signed by many eminent scientists, reading as follows:

> The undersigned respectfully request the British Association for the Advancement of Science and the American Association for the Advancement of Science to consider the advisability of forming an International Scientific Congress, to meet at intervals in the different countries, and, if it should be found desirable, to take measures to initiate the undertaking.

The same petition had been presented to the British Association in Montreal. The American Association referred it to a committee, who were to confer with the British committee. It seems probable now that no such Congress will for the present be organized.

The proceedings were interrupted on the 6th and 7th; and on Monday, the 8th, more papers were read, and receptions were offered the members of the Association by the University of Pennsylvania and the Woman's Medical College. One of the notable papers of this day was presented by Thomas Hampson, in Section I, treating of the apprenticeship system, and the possibility of substituting therefor technical training by lectures or trade-schools. On the next day the election of officers for 1885 took place, with the following result:

President.—Prof. H. A. Newton, of Yale. *Vice-Presidents.*—Section A: J. M. Van Vleck, of Middletown, Conn.; Section B: Prof. C. F. Brackett, Princeton College; Section C: William R. Nichols, Boston; Section D: Prof. S. Burkitt Webb, Cambridge; Section E: Prof. Edward Orton, Columbus, Ohio; Section F: Prof. B. G. Wilder, Cornell University; Section G: Prof. S. H. Gage, Cornell; Section H: Prof. William H. Dall, Washington; Section I: Prof. Edward Atkins, Boston. *Permanent Secretary.*—Prof. F. W. Putnam, of Cambridge (re-elected). *General Secretary.*—Charles Sedgwick Minot, Boston. *Assistant General Secretary.*—C. C. Abbott, Trenton. *Secretaries of the Sections.*—Section A: E. W. Hyde, of Cincinnati; Section B: Prof. A. A. Michaelson, of Cleveland, Ohio; Section C: Prof. F. P. Dunnington, University of Virginia; Section D: C. J. Woodbury, Boston; Section E: Prof. H. Carvill Lewis, Philadelphia; Section F: M. C. Fernald, Maine; Section G: W. H. Walmsley, Philadelphia; Section H: Chairman, Prof. Dall; Secretary, Mrs. Erminnie A. Smith, New Jersey; Section I: J. W. Chickering.

This is the first time in the history of the society that a woman has been elected an officer of a section. Mrs. Smith had attracted much attention the week before at the Montreal meeting of the British Association, where her paper on the Iroquois Indians had been favorably received. The next place of meeting was also chosen—Bar Harbor, Maine, with Ann Arbor, Mich., as a second choice, in the discretion of the Secretary, if found more suitable. The general meeting closed with the adoption of resolutions, prepared by Prof. Trowbridge, asking Congress to provide at once for the extension of geodetic and topographic surveys over the whole country, without regard to State boundaries. In the Anthropological Section another paper on the Omaha Indians was read by Mr. Frank La Flesche, a full-blooded Omaha. In the same section Prof. Edwards Morse read a paper entitled "An Interview with a Corean." It was most interesting, and excited a great deal of attention. The chair was occupied during its reading by Prof. Kubuchu, of the University of Tokio. On the following day various excursions to the West and North were arranged for. One feature of the proceedings was a paper, read in Section H, by Prof. Graham Bell, on "The Evolution of a Race of Deaf-Mutes in America." He asserted that congenital deafness was on the increase, and was hereditary to the fourth generation in some cases. He advocated a mingling of the deaf and dumb with the rest of the people. When the last day of the session, Sept. 11th, was reached, only six of the nine sections were unadjourned. Most of the papers were technical. In the Section of Geology a paper of general interest, by Prof. H. Carrington Bolton, of Trinity College, and Prof. Alexis A. Julien, of Columbia College, was read. Its subject was "Musical Sand," a variety that produces a long, musical sound, like the note of a violin, when it is compressed. In the Chemical Section, Prof. A. Vernon Harcourt spoke, by special invitation, on "Minute Study of Chemical Change" and on "A Lamp for producing Constant Fire."

Owing to the illness of Prof. Lesley, Prof. Cope presided at the general meetings. By one census, the number of members, with guests, was put at 1,257, of whom 300 were foreigners. Among other exercises of special interest may be mentioned the following: Prof. Young's introductory lecture on "Pending Problems in Astronomy"; Prof. Cope on "Evolution and Origin of Life"; Prof. J. B. Martin, of England, on "The Future of the United States"; Prof. E. L. Nichols, of Lawrence, Kansas, on "The Sensitiveness of the Human Eye"; and Prof. R. S. Ball, Astronomer Royal of Ireland, on "The Methods of measuring Distances between the Stars." Three hundred scientists came by special train from Montreal, where the British Association had just closed its meeting.

Abstracts of the papers will be found printed in the journal "Science," published in Boston.

British.—The fifty-fourth annual meeting of the British Association for the Advancement of Science was held in Montreal, Canada, from Aug. 28 to Sept. 3, 1884. For the first time in its history its annual meeting occurred outside of the British Islands. The society was founded fifty-three years ago, by Sir David Brewster, Sir Humphry Davy, Sir John Hershel, and other eminent scientists. To attend the Montreal meeting 800 members crossed the ocean. The sum of $10,000 was raised in the city of Montreal to defray the expenses, and 800 members were received as guests in private residences. The Council of the Association invited the standing committees and fellows of the American Association for the Advancement of Science to attend as honorary members. The proceedings were opened with an address from the Mayor and Corporation of Montreal, and on the following day the Governor-General, Lord Lansdowne, welcomed the Association.

The President-elect, Lord Rayleigh, Professor of Experimental Physics in Cambridge University, was introduced by Sir William Thomson. Prof. Rayleigh's address on "Progress in Physics" has attracted much attention. The work of the society, which represented the reading of 327 papers, was divided among eight sections. The eight sections, whose presidents and vice-presidents are given below, held meetings simultaneously in the different buildings of McGill University and in Synod Hall:

Sir William Thomson presided over the Section devoted to Mathematical and Physical Science, with Vice-Presidents Prof. J. B. Cherriman and J. W. L. Glaisher, the aëronautic celebrity; Prof. Sir H. E. Roscoe over the Section of Chemical Science, assisted by Prof. Dewar and B. J. Harrington; Geological Section, W. T. Blanford, and Prof. T. Rupert Jones and A. R. C. Selwyn assisting; in Biology, Prof. H. N. Moseley, with Surgeon-Major G. E. Dobson and Prof. R. G. Lawson assisting; Geographical Section, Gen. Sir J. H. Lefroy, assisted by Col. Rhodes and P. L. Slater; Sir Richard Temple presided over the Section devoted to Economic Science and Statistics, assisted by J. B. Martin and Prof. J. Clark Murray; Mechanical-Science Section, Sir F. J. Bramwell, assisted by Prof. H. T. Bovey and W. H. Preece; the Section of Anthropology, Prof. E. B. Tylor, aided by Profs. W. Boyd Dawkins and Daniel Wilson.

In addition to the section papers, evening lectures were delivered by different members. The general order included the reading of an address by the president of each section, followed by papers by other members. It would be useless to attempt to summarize any of the papers. Among the more notable ones may be mentioned the following: "The Economic Resources of England," by Sir Richard Temple; "Complex Inorganic Acids," by Prof. Wolcott Gibbs, of Harvard University; "Vortex and Ring Constitution of Matter," by Sir William Thomson; "The Geological Work of the Surveys of India, Australia, and South Africa," by Prof. W. T. Blanford; "On the Seat of Electro-motive Force in the Voltaic Cell," by Prof. J. O. Lodge; "On the Evolution of the North American Continent," by Dr. J. S. Newberry, of Columbia College; "On the Customs and Language of the Iroquois," by Mrs. Erminnie A. Smith. This is the lady who was elected Secretary of Section H of the American Association. Her paper dealt with the superstitions, customs, and languages of the tribe in question. She was received into the tribe of the Tuscaroras some years ago, and adopted as sister by one of the chiefs. She paid a high tribute to the work of the Roman Catholic missionaries. She gave illustrations of the etymology of the language, and exhibited several curiosities. Her paper, which attracted much attention, was honored by a discussion in which Prof. Dawkins, Mr. Cushing, Dr. Wilson, and Prof. Tylor, president of the section, were partakers. The unusual circumstances of her position among the Indians gave her statements the highest value and interest. Besides these, Prof. Thurston, of the Stevens Institute, Hoboken, N. J., gave a paper on the steam-engine, which was exceedingly well received; while Prof. Asa Gray, of Harvard College, received an ovation on the production of his paper on "North American Vegetation." Referring to the reception of American scientists, it may now be said that both Prof. Thurston's and Prof. Gray's papers were among the five lectures recommended by the Association for printing at full length; while McGill University conferred upon Prof. Gray and Dr. James Hall, State Geologist of New York, the degree of LL. D. Of the whole number of papers read, about forty, or one eighth, were by Americans. During the progress of the meeting, Lieut. Greely, the Arctic explorer, was present, and took such part as his feeble health allowed. He was accompanied by Lieut. Ray, who spoke upon the result of the recent Arctic expedition.

At the meeting of the General Committee, a total membership of 1,778 was reported. The committee then adjourned, to meet in London, Nov. 11. The closing meeting was held in Queen's Hall, Sept. 3, with Lord Rayleigh in the chair, when Sir William Dawson, Principal of McGill University, conferred the degree of LL. D. on nineteen of the members. The Association adjourned, to meet again in Aberdeen, Scotland, in 1885. Three hundred of the members then went to Philadelphia, to attend the meeting of the American Association, where they were formally received Sept. 7.

One of the features of the British Society is its committee-work. Many reports were received from committees on different subjects, and the sum of £1,525, or $7,500 nearly, was allowed for this class of work, divided among 30 committees, while 11 received no allowance. Reports of the various papers will be found in the journals, "Nature," published in London, and "Science," published in Boston.

ASTRONOMICAL PHENOMENA AND PROGRESS. Observatories and Instruments.—The most important event in the history of observatories in this country during 1884 has been the completion of the Lick Observatory in California. Its meridian circle has been completed by the Repsolds, of Hamburg, and was mounted during the month of September, 1884, under the direction of Prof. E. S. Holden. This completes the main instrumental outfit, with the exception of the great telescope, which is to be larger and more powerful than any ever before made. A difficulty has been met with in the construction of this instrument which prevents us from fixing a definite time for its completion. The optician, Feil, of Paris, who contracted to supply the rough glass disk, has not yet produced a crown glass of the necessary size, although the contract was made with him in 1880. The result is, that the instrument can hardly be said to have advanced beyond its first stage, because, until the glass is in the hands of the optician, the exact size and length of the telescope must be a matter of some uncertainty. This delay is the more to be regretted from the fact that the fine collection of instruments which the observatory now possesses can not be made fully available for astronomical uses until the great telescope is completed. By the terms of Mr. Lick's donation the trustees have no power to employ an astronomer. Their duties are confined to completing the observatory and telescope, and, when all is ready, the whole establishment is to be turned over to the Board of Regents of the University of California, who are to appoint a professor. The institution is to be thereafter the astronomical department of the university. Unless some arrangement can be made for evading the legal difficulty thus arising, the instruments must stand idle for several years to come.

Two important additions have been made to the great telescopes of the world. The companion of the great Washington telescope, which was nearly finished ten years ago, has since been lying idle in the workshop of the Messrs. Clark, awaiting the completion of the McCormick Observatory of the University of Virginia, for which it was designed. This observatory is now so far completed that the telescope was mounted in the autumn of 1884. The other addition has been the Russian telescope of thirty inches aperture, which ranks as the largest refractor yet made. The glass was completed by the Messrs. Clark about the beginning of 1883. In the spring following Director Struve visited the United States for the purpose of testing the glass and accepting it if found satisfactory. Having found the result to more than fulfill his best expectations, the glass was shipped to Pulkowa, where it has since laid, awaiting the completion of the mounting, and of the dome which is to contain it. The mechanical difficulties of getting a dome more than sixty feet in diameter into working operation were such that the telescope could not be mounted until the autumn of 1884. The mechanical work of the mounting is, in the number and ingenuity of its devices for convenient use, far ahead of any similar work heretofore devised, and reflects additional credit on the Repsolds, of Hamburg, the renowned firm to whom the work is due. The eye-piece alone is a piece of mechanism which in the variety and number of its parts seems to equal the whole outfit of an ordinary observatory. The rigor of the Russian winter is unfavorable to astronomical observations, but it is expected that active work with the new instrument will be commenced early in the spring.

New Method of mounting Reflectors.—The Messrs. Henry, at Paris, have devised a method of mounting the mirrors of great reflecting telescopes which, if entirely successful, may result in greatly increasing the limits of size of these instruments. Theoretically, a reflecting telescope can be constructed of far greater power than the largest possible refractor, because there is no limit to its size. But in practice it is found that reflectors of more than two or three feet in diameter so change their form by the pressure of their own weight that they can not form good images of a celestial object. The very simple but ingenious device of M. Henry consists in grinding the back of the reflector so that it shall accurately fit upon a stiff disk of the same size and form as the reflector itself. A sheet of fine flannel is then interposed between the two, and the reflector is supported upon the flannel. The result of the elasticity of the flannel is that the reflector is sustained with greater uniformity than by any other system. This method is founded on the same general idea as that of the late Dr. Henry Draper, who mounted his reflector with great success upon an air-cushion of rubber.

Equatorial Coudé.—This term has been applied to an instrument of new construction recently mounted at the Paris Observatory. The main tube of the telescope is directed toward the south pole, and therefore in the latitude of Paris looks downward at an angle of 48° with the horizon. It is so mounted as to turn round on its own axis, but is otherwise immovable. From its lower end a second tube projects at right angles, so that when the first tube is turned round, this second one sweeps along the plane of the equator. In the elbow at the junction point, a reflector is placed at an angle of 45° with each tube. At the end of the second tube is placed a second reflector, mounted upon an axis concentric with the tube, with which it also makes an angle of 45°. By turning this second reflector the line of sight is made to sweep along the meridian from one pole to the other. By turning the telescope upon its axis it sweeps in right ascension, and thus by combining the two motions the line of sight can be directed to any point in the heavens. The eye-piece being fixed, the observer sits in a comfortable room looking down into the telescope, which he directs from point to point by simply turning one of two handles. The convenience in use is very important, and it is expected that far more work can be done than with the usual form of instrument. The images of the stars are not seriously injured by the two reflections, a result due to the system of mounting the reflectors on flannel sheets.

The largest and finest heliometer yet made has been brought into activity at the observatory of Yale College. One of the first works undertaken by it is the triangulation of the Pleiades by Dr. W. L. Elkin. A yet finer and larger instrument has been contracted for by Director David Gill for the observatory at the Cape of Good Hope, and will probably be completed by the Repsolds during the year 1885.

Astronomical Work under the Bureau of Navigation, Navy Department. The United States Naval Observatory.—The annual report of the Chief of the Bureau of Navigation to the Secretary of the Navy comprises detailed reports of the astronomical work of the Naval Observatory. A board has been organized, consisting of the Superintendent, the senior Professor of Mathematics, and the senior line officer, who are to deliberate from time to time upon the conduct of the observatory, and whose conclusions shall form the basis of work to be done in each year. Each officer in charge of a separate branch of work is to submit annually or oftener a statement of its conditions, and what he proposes to do during the coming year. It is proposed to distribute this programme among other observatories, in order to avoid the duplication of work. A recommendation of the preceding year is also renewed that a board of visitors be appointed annually to examine into the conduct of the observatory and make such suggestions as may add to its general usefulness. With the great equatorial Prof. Hall has continued his observations of the satellites of the planets Mars, Saturn, Uranus, and Neptune, and has also made some determinations of stellar parallax. Good progress has been made in reducing the observations of these satellites made in preceding years, and it is proposed to continue it steadily until all the observations have been completely reduced and the final results obtained. With the transit circle Prof. Eastman has continued the observations upon the sun, moon, and planets, as made in previous years. The old equatorial, in charge of Commander Sampson, has been employed principally in observing comets, small planets, and occultations. Time-signals are sent to various points in the United States as usual, and since Nov. 18, 1883, the noon-signal has been given corresponding to the seventy-fifth meridian west of Greenwich, or eight minutes twelve seconds before Washington noon. An appropriation for beginning work upon the proposed new observatory, for which a site was purchased three years ago, is again requested.

Physical Constitution of the Sun.—In previous volumes of this "Cyclopædia" mention has been made of Prof. Langley's researches upon the sun's heat. These researches mark an epoch in the history of the subject, from the facts that those made on Mount Whitney were made under conditions more favorable than any which have hitherto been obtained, that they were made with a newly invented instrument of extraordinary sensitiveness (the bolometer), and that the law of absorption in the atmosphere was taken into account more accurately than by previous investigators. Beginning with questions of atmospheric absorption, Prof. Langley remarks that in all previous investigations of the subject it has been assumed that every successive layer of atmosphere through which the solar rays passed absorbed a quantity of solar heat proportional to its density and the length of the path of light through it. He showed that, although this law was true of light of any one color, it was not true when the whole light and heat of every color or wave-length was measured. To show the principle involved let us suppose light of two colors, red and blue, to come from the sun to our atmosphere. Let us also imagine that the atmosphere exerts a very powerful absorption on the blue light, but suffers the red light to pass freely. Then a large quantity of blue light will be absorbed in the upper regions of the air, thus leaving very little of that color to reach the lower levels. The result will be that a smaller proportion of the total light will be absorbed at the lower levels, because nearly all the blue light having already been absorbed, there will be none of that color left to be absorbed, while the red light passes freely in any case. Now, since observations can only be made at the lower strata near the earth, it follows that the rate of absorption in these strata will be less than in the higher strata. Consequently, the allowance for absorption will be too small, and the quantity of heat emitted by the sun, as calculated from observation at the earth's surface, will likewise be too small. If the difference of the rates of absorption depended only upon the red and blue, as we have supposed, the problem would be easy of solution; in fact, however, the light which is most absorbed is scattered all through the spectrum, as is shown by the dark lines, and it thus becomes impossible to make an accurate calculation. Prof. Langley, however, found that from the best estimate that he could make it was probable that 40 per cent. of the total amount of heat radiated by the sun toward the earth was absorbed in the clearest atmosphere. By measuring the quantity of heat which actually reached his instrument, and allowing for the absorption, he reached the following conclusion:

Let a plane surface measuring one square centimetre be exposed perpendicularly to the sun's heat at the mean distance of the earth from the sun; and let the absorbing atmosphere be entirely removed. Then the quantity of heat which will fall on that surface will be such as will raise the temperature of one gramme of water at the rate of nearly 3° centigrade per minute. This result is considerably greater than that obtained by previous experimenters who observed under less favorable conditions and did not properly allow for absorption.

In connection with these researches Prof. Langley has also investigated the heat spectrum of the sun far below the ordinary visible spectrum, and found in it a great number of lines produced by the absorption of the sun's atmosphere or that of the earth. Respecting the apparatus with which these determinations were made, Prof. Langley remarks that although its results are better than those generally obtained in heat measures, it is necessarily inferior to the eye, and that its use may possibly at some future time be superseded by photography. The general result may be summed up as follows: Besides the light-waves that can be perceived by the eye, the sun sends out heat-waves, which differ from the light-waves in nothing except being of greater length and therefore imperceptible to the eye. This has been long known, but Prof. Langley, by inventing a species of artificial eye, as embodied in the bolometer, has been enabled to investigate these obscure rays and measure their wave-length to a higher degree of accuracy than had before been attained. He concludes that this dark spectrum is far longer than was supposed, and that no exact limit can be set to it; but he has extended it to about twice the wave-length previously known, and believes that beyond this the heat can scarcely pass through the atmosphere at all, and therefore is nearly all absorbed before it can reach any human eye.

Dr. Frolich, of Berlin, has devised apparatus for the purpose of comparing the solar heat from day to day with that radiated from a box which was blackened with smoke and kept filled with steam. His regular measures were taken in and near Berlin, but he also made observations on the Faulhorn at the height of 9,000 feet. From his data Dr. Frolich found that the solar heat diminished when the spots were more numerous, while the higher gradations of heat were attended with fewer sun-spots. This result, although suspected by other observers, has not, however, been proved.

The Maximum of Solar Spots.—The last epoch of greatest sun-spots which has been investigated occurred, according to Dr. Wolf, about the end of the year 1870. From previous observed maxima Dr. Wolf fixed the period at 11·1 years; this would bring the next computed maximum at the beginning of 1882. It appears, however, that this maximum has been delayed by one or even two years, as it was not until after the middle of 1884 that the diminution of the spots was so well marked as to show that the maximum had actually passed. It is noticeable that this epoch has not been marked by auroral displays of such brilliancy as have sometimes been observed. The maximum of 1860 was most remarkable in this respect. It has sometimes been supposed that brilliant auroras appear at every third sun-spot maximum; if such is the case, the year 1894 may be expected to be one of brilliant auroras.

Solar Parallax and Velocity of Light.—No important additions have been made to published discussions on the subject of the solar parallax; but determinations of the velocity of light and the constant of aberration have been made which promise to give a more accurate value of the important constant than any that can be made by direct measurement. The new determinations of the velocity of light, made first by Prof. A. A. Michelson, and then by Prof. S. Newcomb, agree in giving a velocity of light not far from 299,860 kilometres per second. The three separate results are:

NAME.	Year.	Kilometres.
Michelson	1879	299,916
Michelson	1882	299,852
Newcomb	1882	299,860

The agreement of these results shows them to be sufficiently near the truth for the determination of the parallax. The more difficult and uncertain question is that of the exact time required for light to pass from the sun to the earth. A new determination of the constant of aberration, which depends upon this time, has been made by Nyrén, of Pulkowa, giving the result 20″·492. The combination of this result with the above velocity of light gives 8·794″ as the solar parallax, a result in good agreement with the best recent measures. The corresponding distance of the sun may be stated in round numbers as 93,000,000 miles, which we are now entitled to regard as the most probable result, and which is not likely to be altered by much more than 100,000 miles by any future discoveries. The fluctuations in the adopted value of this distance have been very remarkable. From 1825 to 1855 the distance 95,000,000 miles, found by Encke, was received with a degree of confidence entirely unwarranted by the character of the observations on which it depended. When it was found to be in error by a larger amount than was expected, it was rejected without due examination, and from various observations made about 1860 the distance was supposed to be about 91,000,000. Subsequent investigations have shown that these two extremes were almost equally far from the truth, and every important step since taken has been in the direction of the old value.

Reduction of the Transit of Venus Observations of 1882.—Although the observations of the last transit of Venus succeeded much better than those of 1874, no definite information is yet available respecting the progress of the reductions in foreign countries. In the United States the work of the commission has been directed principally to the measurement of the photographs and an examination of the instruments with which the photographs were taken. The measurements of the photographic plates have been completed under the direction of Prof. W. Harkness, U. S. N., and a careful investigation of the action of the photo-heliograph under the influence of the sun's ray is now in progress. It is found that the reflectors change their figure under the influence of the sun's rays by an amount which is very appreciable when the most delicate measures are employed. The following table shows the various stations at which photographs were taken according to the plan devised by the American commission, and the number which are available at each:

	No. plates.
At Washington, D. C.	50
At Cedar Keys, Fla.	165
At San Antonio, Tex.	121
At Cerro Roblero, New Mexico	216
At Princeton, N. J.	162
At Lick Observatory, Cal.	130
At New Haven, Conn.	88
Total for northern hemisphere	932
At Wellington, South Africa	180
At Santa Cruz, Patagonia	211
At Santiago de Chile	197
At Auckland, New Zealand	51
Total for southern hemisphere	639

The laborious work of carrying through all the calculations growing out of these measures is not yet commenced, and will probably require several years for its completion.

Visibility of the Satellites of Mars.—In 1877, when the satellites of Mars were discovered, they were supposed to be such difficult objects that they would be entirely invisible except when Mars was near perihelion. They have, however, been well observed at every opposition since their discovery, including that of 1884. It is now expected that in the most powerful telescopes they will be visible even in the least favorable oppositions, including those of 1886 and 1888.

The Planet Jupiter.—It has for some time been suspected that the planet Jupiter bore a remarkable resemblance to the sun, in that its equatorial regions rotated in less time than those nearer the poles. This view seems to have been entirely confirmed by observations upon the remarkable red spot which was visible from 1879 until 1883. This spot was in the middle latitude, and from its motion the following periods of rotation of the planet on its axis were obtained by Denning, of England:

TABLE I.

INTERVAL.	Number of rotations.	Period of rotation.
		h. m. s.
1880, Sept. 27—1881, March 17	418	9 55 35·6
1881, July 8—1882, March 30	640	9 55 38·2
1882, July 29—1883, May 4..	674	9 55 39·1
1883, Aug. 23—1883, Dec. 5..	251	9 55 38·8

From a white spot near the equator the following times of rotation were obtained:

TABLE II.

INTERVAL.	Number of rotations.	Period of rotation.
		h. m. s.
1880, Oct. 20—1881, Sept. 30.	842	9 50 5·8
1881, Sept. 30—1882, Dec. 28.	1,095	9 50 8·8
1882, Dec. 28—1883, Nov. 25.	823	9 50 11·4

It thus appears that there is a difference of more than five minutes between the period of rotation at the equator and in the latitude of the spot. This result is of great interest, as showing how great the analogy is between the planet Jupiter and the sun. No satisfactory explanation of this more rapid rotation at the equator has yet been found. Since the distance which the equatorial regions of the planet must travel in order to make one complete revolution is greater at the equator than anywhere else, the time of its revolution should, it might be supposed, be greater, instead of less, as we actually find it.

Saturn and its Satellites.—Important and interesting researches on the Saturnian system have been made by Prof. Asaph Hall with the great Washington telescope. One of these researches has led to a more certain value of the mass of Saturn than any before attained. The mean distance of the outer satellite was found from the observations of 1875, 1876, and 1877, which give the following separate values of this element, when seen from a point distant 9·53885 astronomical units:

1875; = 515·594″ ± 0·056″...... 57 observations.
1876; = 515·454″ ± 0·058″....... 40 "
1877; = 515·517″ ± 0·053″....... 31 "

Mean; = 515·522″ 128 "

By comparing the observations of Sir William Herschel in 1789, one by Sir John Herschel at the Cape of Good Hope in 1837, and his own observations, Prof. Hall found the sidereal revolution to be performed in 79·8310152 days. From these results, the mass of Saturn comes out $\frac{1}{3481.3}$ of that of the sun. This mass is one half per cent. greater than that of Bessel, and more than one per cent. greater than that found by Leverrier. It agrees, however, with other determinations from the motions of the satellites, and especially with the conclusion of Dr. Meyer described in the "Annual Cyclopædia" for 1883. The other researches refer to the motion of Hyperion, the minute satellite discovered by Bond in 1848, the orbit of which is next within that of Titan. Some years ago Prof. Hall showed that the line of apsides of the orbit of this satellite was revolving in a retrograde direction. This was apparently in contradiction to the received results of gravitation, since the secular variation should be from west to east. But in a paper published by the Royal Astronomical Society in May last, it was shown by the comparison of all the observations since 1852 that there could be no doubt of this seemingly anomalous motion. This unexpected result led Prof. Newcomb to investigate the subject, and he found that the motion was due to the fact that three times the period of revolution of Hyperion was very nearly equal to four times that of Titan, the largest of the satellites, which lay next within the orbit of Hyperion. The correspondence was not perfectly exact, and the result of its not being exact was that the line of apsides was dragged around as it were by Titan, in such a way that all conjunctions of the two satellites take place at or near the point when Hyperion was farthest from Saturn. Thus there exists a third case of a relation among motions in the solar system. Those previously known were the rotation of the moon on its axis, which we know to correspond exactly to its time of revolution around the earth, so that the same face is always presented to us, and the relation among three of the satellites of Jupiter which prevents their ever being in conjunction at the same time.

In the spring of 1885 the ring of Saturn reaches its greatest inclination to the line of sight of an observer on the earth. The winters of 1884, 1885, and 1886 are, therefore, the the most favorable for studying the planet and its rings which astronomers will enjoy until another revolution is completed, which will not be until 1914. It is understood that, under favorable circumstances, Prof. Hall has succeeded in seeing the planet through the division in the ring, thus showing beyond doubt that the division is a real gap, and not merely a dark portion of the ring. So far as known, the observations made with the great Washington telescope do not confirm the view which has sometimes been expressed by astronomers, that the rings of Saturn change their aspect from time to time. Observers have sometimes described the outer ring as broken up into a number of concentric rings, thus giving rise to the theory that this ring was sometimes continuous, and sometimes divided up. A somewhat ill-defined shaded line, known as the Encke division, is always seen under favorable circumstances near the outer edge of the outer ring, and this appearance may have given rise to the impression of one or more divisions. Nor has any separation ever been seen between the dusky ring and the inner edge of the bright ring. In fact, the latter seems to fade into the former by insensible gradations of shade. On the other hand, Mr. Trouvelot, who was formerly attached to the Harvard College Observatory, but who has returned to Meudon, France, expresses himself very decidedly in favor of the supposed changes. These changes he claims to consist—

1. In variations of the brilliancy and color of the surface of the rings.

2. In changes, sometimes slow and sometimes quite rapid, in the form of the shadow cast by the globe of the planet upon the rings.

3. In variations which affect the ring throughout its entire thickness. At the last opposition he found that the Encke division had entirely disappeared, and that its place was taken by a new division, more marked and nearer to the old and well-known one of Cassini. He also noticed that the narrow belt between this new division and the old one was more brilliant than he had ever before seen it, and was subject to fluctuations. The question of variability must still be an open one which can be decided only by comparing simultaneous observations made by observers at distant stations. Until this is done it will be safest to attribute the supposed changes to variations in the state of the atmosphere and the eye of the observer.

The physical features of the ball of the planet have been investigated by a number of English investigators. At the January meeting of the Royal Astronomical Society, Mr. Green said that the outline of the ball could be traced on either side for some little distance through the dusky ring. This coincides with the observations made some years ago by Mr. Trouvelot with the great Washington telescope, and, if correct, show conclusively that the dusky ring is transparent, at least near its inner edge. The studies made by Mr. Green and Mr. Pratt indicate a remarkable resemblance between the balls and other markings on Saturn and those on Jupiter, the principal difference being that the former are very much fainter, and can therefore be made out only under favorable conditions. Around the equatorial region extends a zone of a creamy yellow tint, which is usually free from markings. At about latitude 10° there is a strongly marked narrow belt, sometimes gathered into wispy notches and curved markings, as on Jupiter. The color of this belt is a Vandyke brown. Several alternate belts, ranging from a creamy tint to a very pale rose madder, are seen in middle latitudes, and terminate with the bluish-white polar cap.

The Zone of Asteroids.—The discoveries of small planets, which fell off so remarkably during the years 1882 and 1883, were recommenced with their old vigor in 1884, nine being discovered during the latter year. This carries the whole number now known up to 244. The following table shows the discoveries of the year:

LIST OF SMALL PLANETS DISCOVERED IN 1884.

No.	Name.	Discoverer.	Date, 1884.
236	Honoria	Palisa, at Vienna....	April 26.
237	Cœlestina ...	Palisa, at Vienna....	June 27.
238	Hypatia	Knorre, at Berlin....	July 1.
239	Adrastea....	Palisa, at Vienna....	August 8.
240	Vanadis .. .	Borelly, at Marseilles	August 27.
241	Germania...	Luther, at Biek	September 12.
242	Kriemhild...	Palisa, at Vienna....	September 22.
243	Ida.........	Palisa, at Vienna....	September 29.
244	Unnamed...	Palisa, at Vienna....	October 14.

Cometary Discoveries in 1884.—The first comet discovered in 1884 is catalogued properly with the comets of the preceding year, as it passed perihelion on Dec. 25, 1883. It was discovered by Ross, an amateur observer at Esternwick, near Melbourne, Australia, on Jan. 7, 1884, a "faint nebulous object with an ill-defined, tail-like projection." By January 18th, the tail had reached a length of a degree and a half. The comet was invisible in the northern hemisphere, and was under observation at the southern observatories for only about a month.

The first comet of 1884, in order of perihelion passage, was that discovered by Brooks at Phelps, N. Y., on Sept. 1, 1883 (comet C, 1883). As soon as sufficient observations were obtained to determine approximately the orbit, it became evident that this was a return of the comet originally discovered by Pons at Marseilles on July 20, 1812, one of a group of which Halley's comet is another member, having a period of about seventy-five years, and an aphelion a little beyond the orbit of Neptune. As the second comet of this group to return to perihelion, the comet was looked for with considerable interest, and this interest was subsequently increased when observations showed the rapid changes suffered by the head in approaching the sun, and the curious fluctuations in the brightness of the nucleus. From a star of the eleventh or twelfth magnitude at the time of discovery, it increased gradually in brightness to the 7½ magnitude on September 23, and then suddenly decreased to the ninth magnitude on September 29. A gradual increase again took place till October 6, when it was a second time noted as 7½ magnitude, and then, after another short period of decrease, a final steady increase in brightness began about the first of November, and continued until a maximum of the second magnitude was reached, about the time of perihelion, in the latter part of January. From Nov. 27, 1883, to March 8, 1884, the comet was reported visible to the naked eye. The tail, which was detected about the first of December, attained a length of six by January 20, and then faded out gradually until it was invisible even in the telescope by February 26. The nucleus was observed as late as March 29, 1884. The spectroscope gave the usual hydrocarbon spectrum of comets.

The second comet of 1884, in order of perihelion passage as well as of discovery, was found by Barnard, at Nashville, Tenn., July 16, 1884. It was a nebulous object, slightly condensed near the center, and, for a telescopic comet, quite bright. The orbit proved to be elliptical, with a period of about 5¼ years, perihelion occurring August 16. The elements bear a remarkably close resemblance to those of De Vico's comet of 1844 (1844 I), but the identity of the two objects is improbable. The comet, at no time prominent, was last reported visible about the end of October.

A new comet was discovered by Wolf, a student of astronomy at Heidelberg, on Sept. 17, 1884. It appears to belong to the group of the Faye-Moller comet (comet 1857 IV, and comet 1874 IV). There is no evidence of any previous appearance, though, if the period of 6·75 years assigned is correct, it would be visible from the earth at only about every third return. The comet shows a pretty well-defined, star-like nucleus surrounded by its nebulous envelope, but it has not developed a tail. Perihelion was passed Nov. 17, 1884. The fact that this comet was never before observed, although it is now moving in an orbit in which the time of revolution is less than seven years, led Dr. Krueger to investigate the question whether we had not another case of a comet taking a new orbit by the action of Jupiter. Tracing back the course of the comet, he found that about May 28, 1875, it must have passed very near to Jupiter, and might therefore have had its orbit entirely changed. Another astronomer has undertaken to compute the change produced in the orbit by this approach, and found that before 1875 it might have been moving in a much larger orbit. This result is, however, entirely uncertain, owing to the want of exact knowledge of the time of revolution. All that can be said with confidence is that a great change was produced by the action of Jupiter. It will probably perform seven or nine revolutions in its present orbit without again approaching Jupiter, and may then again encounter that planet and be once more thrown into a new orbit.

A round, faint, nebulous object was found by Spitaler on the evening of May 26, 1884, while he was searching with the twenty-seven-inch refractor of the Vienna Observatory for comet 1858 III. Unfavorable weather prevented a re-examination of this part of the sky till June 17 and 18, and then the object could no longer be seen; nor could it be found afterward. It is still doubtful whether this was the expected comet of 1858 or not.

Pickering's Photometric Researches.—The application of the photometer to astronomical research has been a specialty of the Harvard Observatory since Prof. Pickering became its director. The method of observing the eclipses of Jupiter's satellites by the photometer is likely to be a great improvement in accuracy upon the older eye-methods, and may be expected to supersede them for all the purposes of accurate astronomy. The greatest work of this class is the determination of the brilliancy of all the stars down to the sixth magnitude visible at Cambridge by means of a meridian photometer. The latter is an instrument of Prof. Pickering's invention. It is so arranged that an image of the pole-star is always visible in the field of view, and is used as a standard of comparison. The instrument itself is mounted in an east-and-west horizontal position. It has two objectives of the same aperture and focal length. A prism in front of each reflects the light of a star, the one being used for the pole-star, and the other for the star to be measured. The latter prism may be turned round the axis of the telescope, so as to form an image of any star sufficiently near the meridian. The two pencils as they leave the object-glass are each divided by a double refracting prism, in such a way that one ray from each is made to coincide. The result of many ingenious devices and precautions is, that the images of the two stars can be brought into close juxtaposition, and by means of a polarizing apparatus the two images can be brought into exactly equal brilliancy. The observations occupied the four years, 1879 to 1882, and the results, as published in Volume XVI of the "Harvard Observatory Annals," form one of the most available catalogues of the brightness of stars now at the command of astronomers.

Astronomical Photography.—In Dr. Gill's photographs of the great comet of 1882, taken at the Cape of Good Hope Observatory, it was found that the stars down to the eighth and ninth magnitude were clearly depicted on the plate. This fact suggested a new method of forming approximate catalogues of the fainter stars by taking photographs of regions of the heavens, several degrees square, and afterward measuring the position of the stars on the plates. The method has been tried at the Harvard College Observatory by Mr. W. H. Pickering. He had in view the construction of a photographic map of the whole heavens, and the determination of the light of the brighter stars. He succeeded in obtaining maps nearly 15° square, containing stars as faint as the eighth magnitude. Should the method prove a success, it is expected that catalogues of the fainter stars can be made with far less labor than heretofore.

Possible Influence of Cosmical Dust.—The phenomena of meteors and shooting-stars show that matter is constantly falling upon the earth from space. But science has hitherto furnished no method of estimating the probable quantity of such matter. The dust collected upon the snow in the polar regions has sometimes been supposed to have originated in this way, but this theory is as yet entirely unproved. Dr. Oppolzer, of Vienna, has recently investigated the question whether the excess of the moon's apparent acceleration above its computed value may not arise from the mass of the earth being gradually increased in this way. By a very careful but somewhat abstruse mathematical calculation he finds that a precipitation of cosmical dust amounting to 2·8 millimetres in a century, over the whole earth's surface (or about a thousandth of an inch in a year), would completely account for the observed excess of the secular acceleration. The question whether a fall of this amount is possible has not yet been considered by geologists.

The Krakatoa Eruption, and the Red Skies.—The autumn of 1883 was remarkable for a succession of brilliant sunsets of a very unusual kind, in nearly every part of the world, but more especially in India and the Indian and Southern Pacific Oceans. As the sun approached the horizon, it was seen to assume a distinctly greenish aspect, and an unusual color seemed to pervade the western sky. As a rule, nothing very unusual was observed during the half-hour after sunset. About that time, however, an extraordinary red glow, as from a great fire, began to pervade the western sky, and in some instances actually led to the belief of a conflagration. The phenomenon was first noticed in India, but gradually spread around the whole world. The theory that found most credence among astronomers was that it proceeded from volcanic dust and vapors thrown up at the great eruption of Krakatoa near the end of August, 1883. (See METEOROLOGY, in "Annual Cyclopædia" for 1883, page 525.) It was found that the course of the red skies around the world followed closely the course that such vapors might be expected to take, from being wafted from place to place by the winds. Additional interest was given to this view by the discovery that self-registering records of barometric pressure, in various points of Europe, showed that an atmospheric wave from the same eruption was carried around the earth.

Stellar Parallax.—An important addition has been made at the Cape Observatory to our knowledge of stellar parallax by Drs. Gill and Elkin, working in concert, the latter being the guest of the former at the Cape Observatory. The instrument employed was the fine heliometer made for Lord Lindsey, for the observations of the transit of Venus in 1874. This instrument was purchased by Dr. Gill individually and was brought into use at the Cape in 1880. The following results were communicated to the Royal Astronomical Society in 1884:

	Parallax.	Probable error.
	"	"
α Centauri	+0·75	±0·01
Sirius	+0·38	±0·01
ε Indi	+0·22	±0·03
Lacaille 9352	+0·28	±0·02
o² Eridani	+0·166	±0·018
β Centauri	−0·018	±0·019
ζ Toucani	+0·06	±0·019
ε Eridani	+0·14	±0·020

The most interesting of these results are the first two. The nearest fixed star, so far as we know, is α Centauri, but its distance is shown to be a third greater than was formerly supposed. The actual distance from the above parallax is 275,000 times the distance of the sun, a space which light would require four years four months to traverse. Sirius, though the brightest fixed star in the heavens, is shown to be more distant than several others of the fourth, fifth, or sixth magnitude, and must be regarded as emitting some fifty times as much light as our sun. But the case of β Centauri, a star of almost the first magnitude, is yet more remarkable. Its small negative parallax is impossible, and only shows that its distance is so great as to elude even the refined measurements of Dr. Gill. It can hardly be less than eight or ten times the distance of Sirius, and its absolute brightness must be several times that of Sirius.

Parallax of α Tauri.—It does not appear that any attempt has ever been made to measure the parallax of α Tauri, its proper motion being so small that the parallax has been supposed very minute. In preparing his measures of double stars for the press, Otto Struve, director of the Pulkowa Observatory, noticed that they were very favorable for a determination of parallax, and proposed to one of his assistants to investigate the subject. The observations were very accordant in showing a parallax of 0·516". This result, if confirmed, will place α Tauri among the three or four nearest of the fixed stars.

Motion of Stars in the Line of Sight.—The spectroscopic determination of the motion of stars in the line of sight, which was inaugurated by Mr. William Huggins, is still continued at the Greenwich Observatory. One result of recent observations is quite inexplicable. The earlier determinations of the motions of Sirius, both by Mr. Huggins and the Greenwich observers, were accordant in showing that Sirius was receding from our system at the rate of some twenty-five miles per second. But, according to the recent measures, this motion has entirely ceased, many observations even showing that the star is approaching us. The reality of such a change in the motion must be considered inadmissible.

The Companion of Sirius.—The discovery of this companion is memorable as having been made by Alvan Clark, Jr., in 1862, with the object-glass of the great telescope which had been constructed for Chicago, and as lying exactly in the direction in which the motion of Sirius for a hundred years past had shown that some revolving satellite must be found. It was therefore a case in which the direction of the body had been indicated by its attraction upon another body, before its existence had become known. For a few years observations showed that the motion of the satellite around its primary was more rapid than that which had been indicated by theory, the difference in two directions amounting to nearly 10°. But the observations made by Prof. Hall and other observers in 1884 showed that the satellite is now rapidly approaching the planet, and that its position is coming more and more into agreement with the old calculations. In a very few years it will be so close to Sirius that it is questionable whether even the most powerful telescope will be able to distinguish it. According to Dr. Auwers, the nearest approach will take place in the year 1891.

The International Meridian Conference.—Among the many events of the year pertaining to astronomy we must include the work of the International Conference that met in Washington during the month of October, 1884, for the purpose of deciding upon a common prime meridian and a common system of time to be used by all nations. The bill authorizing the President to invite the Conference became a law in the year 1882. Before issuing a formal invitation, it was judged best to inquire in advance whether foreign nations were ready to enter upon the discussion of the question. These preliminary inquiries showed that some governments were ready to receive proposals favorably, while others delayed an answer, waiting a preliminary discussion of the subject by the International Geodetic Association of Europe. This body met at Rome in October, 1883. Besides the regular members of the association, the Astronomer Royal of England and a delegate from the Coast Survey of the United States were present. The association, after considerable discussion, adopted the following conclusions bearing upon the subject, the preliminary remarks being omitted:

> II. That the Conference propose to the Government to choose for the initial meridian that of Greenwich, inasmuch as that meridian fulfills, as a point of departure of longitudes, all the conditions required by science; and that, being already actually the most extensively used of all, it presents the greater probability of being generally accepted.
>
> III. That the longitudes should be reckoned from the meridian of Greenwich in the sole direction from east to west, and from zero to 360°, or from zero to twenty-four hours; the meridians on the charts and the longitudes in the registers should be indicated everywhere in hours and minutes of time, with liberty of adding the indication of the corresponding degrees.
>
> IV. That the Conference recognizes for certain scientific needs, and for the service of the great administrations of the means of communication, such as railways, steamship lines, telegraphs, and posts, the utility of adopting a universal hour, side by side with the local or national hours, which will necessarily continue to be employed in civil life.
>
> V. That the Conference recommends, as the point of departure of the universal hour and of cosmopolitan dates, the mean noon of Greenwich, which coincides with the instant of midnight or with the beginning of the civil day, situated at the twelfth hour, or at 180° Greenwich. It follows that the universal time will correspond everywhere with the mean local time, reckoned from midnight, less twelve hours and the longitude of the place, and that the dates change at the antipodes of Greenwich.
>
> VI. That it is desirable that those states which, in order to adhere to the unification of longitudes and of hours, will have to change their meridians, should adopt the new system of longitudes as quickly as possible in their observatories and official almanacs, in their geodetical, topographical, and hydrographical works, and in their new charts. As a means of transition it would be well that in new editions of old charts, on which it would be difficult to change the squares, the indications according to the new system should at least be inscribed alongside the enumeration of the old meridians.
>
> VII. That these resolutions should be laid before the governments and recommended to their friendly consideration with the expression of a hope that an International Convention, confirming the unification of longitudes and of hours, may be concluded as quickly as possible by a special conference.

These conclusions of the Roman Conference indicated that an agreement upon the subject was possible. The formal invitation from our Government was therefore sent in the month of December, 1883, to all nations with which it was in diplomatic communication. The date fixed for the Conference was October 1, 1884. Each nation was requested to send not more than three conferees, but this number was afterward increased to five. For the most part the foreign nations were represented by their diplomatic envoys resident in Washington, but England, France, and Russia, as well as Brazil, and a few other states, sent one or more special conferees. The Conference met at the appointed time, in the Department of State at Washington, and Rear-Admiral C. R. P. Rodgers, the senior member of the American delegation, was chosen president. The point which was most warmly discussed was whether the universal prime meridian to be adopted should be that of Greenwich. The most vigorous opposition came from the French representatives, whose spokesman was M. Janssen, the eminent astronomer of the Institute of France. This gentleman took the ground that, to be entirely acceptable to all, the prime meridian should not be fixed with reference to the capital of any one nation, but should be entirely "a neutral meridian," chosen solely with reference to geographical considerations. He maintained that a meridian passing through Behring Strait would fulfill the requirements better than any other. When, after a prolonged discussion, extending through several sessions, the question was finally put to vote, the meridian of Greenwich was adopted, with the single dissenting vote of San Domingo, the representatives of France and Brazil refraining from voting.

The next important subject considered by the Conference was that of a system of universal time to be used for all purposes where it should be found convenient. This also led to prolonged discussion upon the relative advantages of different systems of counting time. The final conclusion was in favor of the civil day at Greenwich as the universal day. The conclusions of the Conference were finally formulated as follows:

I. That it is the opinion of this Congress that it is desirable to adopt a single prime meridian for all nations, in place of the multiplicity of initial meridians which now exist.

II. That the Conference proposes to the Governments here represented the adoption of the meridian passing through the center of the transit instrument at the Observatory of Greenwich as the initial meridian for longitude.

III. That from this meridian longitude shall be counted in two directions up to 180°, east longitude being *plus*, and west longitude being *minus*.

IV. That the Conference proposes the adoption of a universal day for all purposes for which it may be found convenient, and which shall not interfere with the use of local or other standard time where desirable.

V. That this universal day is to be a mean solar day; is to begin for all the world at the moment of mean midnight of the initial meridian, coinciding with the beginning of the civil day and date of that meridian; and is to be counted from zero up to twenty-four hours.

VI. That the Conference expresses the hope that as soon as may be practical the astronomical and nautical days will be arranged everywhere to begin at mean midnight.

VII. That the Conference expresses the hope that the technical studies designed to regulate and extend the application of the decimal system to the division of angular space and of time shall be resumed, so as to permit the extension of this application to all cases in which it presents real advantages.

It is expected that the main conclusions which relate to a universal meridian and a common system of time will meet with universal acceptance. The minor points on which the Conference made its recommendations may have to receive further consideration by those specially concerned, as well as by the public at large. The question of changing the astronomical day, which has always been counted from midnight since the commencement of modern astronomy, is now being considered by astronomers whose opinions are not yet in accord on the subject. It was proposed at the Greenwich and Washington Observatories to introduce the change immediately; a decision has, however, been postponed, to await a common agreement among the astronomers of the world, which it is expected will be reached during the present year.

International Communication of Astronomical Discoveries.—All important astronomical discoveries made in Europe or America are now immediately communicated by telegraph to the leading observatories of the world. The credit for devising the system on which this is done is largely due to two amateur astronomers of Boston, Messrs. Ritchie and Chandler. It consists in the use of a dictionary cipher. When a number of degrees and minutes have to be sent, the sender finds the page of Webster's Dictionary corresponding to the number of degrees, and then selects a word corresponding to the number of minutes, which he telegraphs. By this system the sending of seven words gives the astronomer all necessary information respecting the observations and elements of a comet or planet, and at the same time enables him to detect any accidental mistake in transmitting the message. The central bureaus for receiving and transmitting the messages are Cambridge, Mass., and Kiel, Germany.

Astronomical Prizes.—Two important prizes for astronomical research are hereafter to be awarded by the National Academy of Sciences. One of these prizes was founded by the bequest of the late Prof. James C. Watson, of Ann Arbor, Mich., who died in 1880. Owing to the long delay in settling his estate, and designing the medal, the latter has not yet been awarded. The provisions of the bequest permit of the award of a medal biennially, and allow the surplus income from the endowment to be employed in astronomical research. The other medal was founded by Mrs. Draper, widow of Prof. Henry Draper, of New York, in honor of her husband, who was a distinguished member of the Academy. This medal is to be awarded for researches in physical astronomy, the branch which Dr. Draper cultivated with such success.

AUSTRALIA AND NEW ZEALAND. The British colonies of Australia, with New Zealand and the Fiji Islands, have an area of 3,083,440 square miles, and a population of 3,063,686. The area and the population at the end of 1881 are shown in the following table:

COLONIES.	Square miles.	Males.	Females.	Total population
New South Wales	309,175	429,278	351,987	781,265
Victoria..............	87,884	464,222	418,010	882,232
Queensland	668,224	132,904	94,064	226,968
South Australia	379,305	156,445	136,852	293,297
Northern Territory....	523,620	......	......	2,476
Western Australia.....	975,920	17,216	12,797	30,013
Tasmania	26,375	63,234	55,689	118,923
New Zealand...........	104,403	274,986	225,924	500,910
Fiji Islands.............	8,034	71,323	57,188	128,511
Total	3,083,440	1,588,285	1,295,323	2,886,078

The population, according to the census of April 3d, of those colonies that have made returns, was divided in respect of nativity as follows:

COLONIES.	BORN IN—				Total population
	Australia.	Great Britain.	Germany.	China.	
Victoria	539,060	282,339	8,571	11,799	862,346
Queensland...	100,901	75,614	....	11,258	213,525
West Australia	202,687	69,645	7,659	.....	279,865
Tasmania.....	83,978	28,248	782	844	115,705
New Zealand..	223,404	221,340	4,819	5,033	459,933

The number of aborigines in New South Wales was 1,643; in Victoria, 780. In Queensland the black population was estimated at 20,585. In South Australia the number in the settled districts was 6,346. In Western Australia there were 2,346 in the employ of colonists. The Maori population of New Zealand was 44,097. The population of Victoria, Queensland, and New Zealand was divided in respect of religion as follows:

CREEDS.	Victoria.	Queensland.	New Zealand.
Protestants	618,892	189,880	387,767
Roman Catholics	203,480	54,876	68,984
Israelites	4,830	457	1,536
Pagans and Mohammedans	11,159	16,871	4,936
Not reported	24,965	2,440	26,710
Total population	862,346	218,525	489,933

The movement of population in 1881 was as follows in the different colonies:

COLONIES.	Marriages.	Births.	Deaths.
New South Wales	6,284	28,993	11,536
Victoria	5,896	27,145	12,302
Queensland	1,708	8,220	3,320
South Australia	2,808	10,708	4,012
Western Australia	197	1.005	412
Tasmania	856	3,918	1,733
New Zealand	3,281	18,732	5,491
Total	20,525	98,721	38,306

The following table shows the immigration movement in 1881:

COLONIES.	Immigration.		Emigration.	
New South Wales	45,870	47,723	26,559	24,825
Victoria	56,955	59,066	45,294	51,744
Queensland	18,896	16,223	10,849	9,209
South Australia	14,765	19,552	18,002	16,800
Western Australia	577	757	777	690
Tasmania	10,411	12,579	10,025	11,163
New Zealand	15,154	9,688	7,928	8,072
Total	157,128	165,568	118,929	122,508

The following cities contained, with their suburbs, more than 20,000 inhabitants in 1881:

CITIES.	Population.
Melbourne, Victoria	282,947
Sidney, New South Wales	224,211
Dunedin, New Zealand	42,794
Adelaide, South Australia	38,479
Ballarat, Victoria	37,260
Brisbane, Queensland	31,268
Auckland, New Zealand	30,952
Christchurch, New Zealand	30,715
Sandhurst, Victoria	28,153
Hobart Town, Tasmania	21,118
Wellington, New Zealand	20,563

Commerce.—The values of the total imports and exports in 1881, and of the portion of Great Britain in the trade, were as follow:

COLONIES.	Total imports.	Imports from England.	Total exports.	Exports to England.
	Pounds.	Pounds.	Pounds.	Pounds.
New South Wales	17,409,000	8,987,000	16,049,000	7,561,000
Victoria	16,719,000	7,518,000	16,252,000	7,784,000
Queensland	4,064 000	1,307,000	3,540,000	1,160,000
South Australia	5,224,000	2,819,000	4,408,000	2,589,000
Western Australia	405,000	160,000	503,000	261,000
Tasmania	1,431,000	840,000	1,556,000	512,000
New Zealand	7,457,000	4,580,000	6,061,000	4,476,000
Total, 1881	52,709,000	25,661,000	48,839,000	24,348,000
Total, 1880	45,060,000	20,177,000	48,866,000	27,016,000

The exports of the precious metals and of wool, in 1881, were of the following amounts:

COLONIES.	Precious metals.	Wool.
New South Wales	£1,982,000	£7,531,000
Victoria	4,774,000	5,450,000
Queensland	930,000	1,332,000
South Australia	64,000	1,912,000
Tasmania	211,000	498,000
New Zealand	1,167,000	2,914,000
Total, 1881	£9,128,000	£19,637,000
Total, 1880	7,236,000	22,018,000

Railroads and Telegraphs.—The mileage of railways completed and under construction in 1881, in the several colonies, was as follows:

COLONIES.	Open to traffic.	Under construction.
New South Wales	996	578
Victoria	1,247	159
Queensland	800	238
South Australia	832	161
Western Australia	92	20
Tasmania	172	...
New Zealand	1,287	171
Total	5,426	1,317

The telegraph mileage was as follows:

COLONIES.	Lines.	Wires.
New South Wales	8,515	14,278
Victoria	3,850	6,626
Queensland	6,280	8,565
South Australia	4,946	7,227
Western Australia	1,585	1,598
Tasmania	928	1,157
New Zealand	3,824	9,653
Total	29,428	49,119

Confederation.—The Convention of Australasian Governments, which met at Sydney in November, 1883, to consider the question of federative action in matters of common concern, adopted resolutions in favor (1) of the confederation of the colonies in an Australasian Dominion; (2) of the annexation of Papua and other islands of the Western Pacific; and (3) of combined protective legislation against criminal aliens. The scheme of federation approved by the delegates, without a dissenting voice, is to create a Federal Council, which shall meet at Hobart, Tasmania, once every two years to take cognizance of questions concerning (1) the relations of Australia with the islands of Oceania, (2) the landing of criminals, (3) fisheries in Australian waters outside of the territorial limits of the colonies; with the prospect of extending its jurisdiction by later agreement to matters connected with quarantine, extradition, justice, currency, etc.

The subject was suffered to rest after the separation of the convention in the middle of December until the meeting of the Victorian Legislature in June. The Premier, who had been the most active promoter of the federative movement, obtained the almost unanimous ratification of the resolutions by both houses. The legislatures of Tasmania and Queensland, which had been waiting for the action of the leading colonies, adopted addresses praying the British Government to introduce a bill to create a Federal Council. The other colonies adopted the resolutions during the summer, with the exception of New Zealand and New South Wales, where the proposal encountered general indifference and some degree of opposition. These colonies did not act until the beginning of the extraordinary session of the British Parliament. New-Zealand, content with the security afforded by her isolated geographical position, and with her independent material progress, feared the expense involved in federation and possible encroachments on her legislative independence. New South Wales also feared that federation with the less progressive colonies would prove an incumbrance, and dreaded lest the British Government should propose the cession of the valuable Riverine District to Victoria. The Government refused to bring the subject before the Assembly until the land bill was disposed of. At last, when the British Cabinet had an enabling act prepared, the Legislature of New South Wales approved in qualified terms the resolutions, and that of New Zealand also recorded its general approval.

Victoria was constituted a self-governing colony in 1854. The Legislative Council, of 86 members, is elective by a limited franchise, fixed by the law of 1881 at £10 annual ratable value of freehold property, or the occupancy of rented or leased property rated at £25 annual value for all except professional men. The term of the members, who must have property yielding £100 income, is nine years, one third retiring every three years. The members of the Legislative Assembly are elected for three years by universal suffrage. The Governor is Sir Henry Brougham Loch, formerly Governor of the Isle of Man, who succeeded the Marquis of Normanby in July, 1884. The Prime Minister is James Service.

Finance.—The revenue for the year ending June 30, 1884, was £5,934,241, being £332,176 greater than in 1882–'83. The railroad revenue increased, owing to the fine grain-crop, from £1,838,284 to £2,079,248. The customs receipts showed a falling off. The revenue for 1884-'85 is estimated at £6,495,878; the expenditure at £6,402,931. The London and Oriental Bank, which failed in 1884, held on deposit £438,364 of the colonial funds. A redemption loan of £3,500,000 is to be floated in 1885 to meet £3,180,000 of debentures, which fall due. An additional tax of two shillings per gallon on spirits was determined on in order to increase the revenue still further, and to satisfy the temperance sentiment of the community, and assimilate the system of taxation to that of New South Wales and the other colonies.

The Recidivist Question.—The announcement of a bill by the French Government to provide for the transportation of *récidivistes*, or criminals who have served sentences for former offenses, created excitement and alarm throughout the Australian colonies, and stimulated the movements in favor of confederation and the annexation of the islands of the Western Pacific. The plan of ridding France of her habitual criminals, by sending them to the colonies where the conditions are more favorable for reform, has been in contemplation for several years. It originated with Gambetta, after the hostile demonstration of his Belleville constituents, characterized by him at the time as criminals whom he would track to their lairs. The recidivist bill, introduced in 1884, applies to offenders that have been sentenced twice to penal servitude, or four times for such crimes as larceny, breach of trust, obtaining money under false pretenses, indecent conduct, etc., or six times for begging or vagabondage under suspicious circumstances, or for an equivalent combination of any of the three classes of offenses.

The agitation for diplomatic action and the representations to the home authorities in this sense were resented in France as an interference with her domestic legislation. The Australians objected to the use of New Caledonia at all as a convict settlement, and suggested its acquisition by Great Britain in exchange for the Falkland Islands. New Caledonia was not a penal colony until the transportation thither of 18,000 Communists. After their amnesty, other criminals who were considered suitable subjects for colonization were settled on the Government lands. The strict discipline of Admiral Courbet was followed in November, 1882, by the humanitarian mildness of Captain Pallu de la Barrière, a governor who fitly represents the sentimental laxity that marks recent French criminal legislation. The convicts are allowed almost as much freedom as the other colonists enjoy, and when they have obtained tickets-of-leave they can take up farms and bring out their families. If, unmarried, they can select wives from among shipments of female delinquents in the French penitentiaries, who volunteer to go out to New Caledonia to marry convicts. Most of these are immoral women. Three-year tickets-of-leave to reside abroad are granted to expirees on condition that they shall not return to France. Men of this class are sometimes landed in Australia from steamers; others escape in open boats. The criminal class in the English colonies has thus been augmented by some desperate ruffians and some very skillful burglars. New Caledonia has been the destination of French murderers for several years, and transportation thither was so attractive to French criminals that in 1880 an epidemic of murder broke out in the prisons, so that a law had to be passed excluding murders committed in prison from this form of punishment.

In January, 1884, the British Government protested against the sending of any more criminals to New Caledonia in view of the state of feeling existing in the colonies. M. Ferry characterized the agitation as insincere, and prompted by annexation greed, and declared that the class of offenders deported to New Caledonia were not positive criminals, but promised to respect as far as reasonable the susceptibilities of the colonies. The English Government did not press for pledges that might offend French dignity and provoke the Legislature to more unfavorable action than would otherwise result. Later in the year the French Government announced that the number of *récidivistes* to be dealt with under the contemplated act would not exceed 5,000 the first year, and would rapidly diminish in succeeding years. As the result of a parliamentary inquiry, it was decided that New Caledonia could not take more than one fifth of these, the remainder going to Cayenne. The French Government offered to make a more effectual extradition treaty to insure the return of escaped convicts to New Caledonia.

The colonists were dissatisfied at the want of vigor displayed by the Imperial Government. In 1840 the people of Victoria resisted by force the landing of English convicts at Melbourne, and threatened to collect a ship-load of the worst cases and land them on the coast of Devonshire if the mother-country persisted in sending criminals to their colony. This menace was sufficient to put a stop to English transportation. It was now proposed to return escaped convicts from New Caledonia to France, and also to apply to French steamship-masters a law making it punishable for British shipmasters to land criminals in Victoria, passed while Tasmania was still a penal settlement. Queensland, on whose shores escaped French convicts oftenest land, took the lead by enacting a law of this character.

Legislation.—Two important bills of a financial nature engaged the attention of the Legislature during most of the session of 1884. Their object was to increase the revenue to meet the cost of railroad extensions partly from the resources of the colony and not swell inordinately the debt to foreign bondholders.

The land act introduced by the Government established the leasing system in Victoria. The public domain remaining unsold consisted of only 20,447,443 acres, classified as follows: 1. Pasture lands, 8,300,160 acres; 2. Auriferous lands, 961,760 acres; 3. Agricultural and grazing lands, 8,712,000 acres; 4. Lands to be submitted to public auction, 832,320 acres; 5. State forests, timber, and other reserves, and water, 1,538,313 acres; 6. Swamp-lands, 82,880 acres. An act was passed in the session of 1883 to allow a class of inferior land known as the mallee scrub to be offered on pastoral leases. About 4,000,000 acres were occupied under this act, and the work of reclamation began. Under the new act the leasing system was extended to the lands classified as pasturable. The rental depends upon the number of head of stock pastured, and is fixed at the rate of 1*s.* per annum for each sheep and 5*s.* for every head of cattle. The leases for blocks of 2,000 and 4,000 acres for fourteen years are sold at public auction. The agricultural and grazing lands are leased in 1,000-acre blocks for fourteen years, at from 2*d.* to 4*d.* per acre. The auriferous lands are to be let for mining, and the swamp-lands leased in 160-acre holdings for reclamation.

The coalition ministry, which has a practically unanimous support, brought up the long-mooted question of mining royalties under better auspices than any previous government. The precious metals in the earth belong by common law to the Crown, but the Government has never asserted its rights except in demanding a license-fee from every digger. Neither has it waived them, like the American States, in favor of the discoverer. The miner is not entitled to claim and work a deposit that he has found, on payment of damages to the owner of the land, as in the United States. He is therefore obliged to make terms with the owner if the discoveries are made on private land. The land-owners are thus enabled practically to appropriate property rights that by law are the prerogative of the Crown. They exact a percentage of the gross yield of the mines, of 5, 7½, 10, and sometimes 15 or 20 per cent., which they call a royalty. Without labor or risk they have in many cases received the lion's share of the profits. The wealthy Port Phillip and Clunes company has paid to the freeholders 29 per cent. of its total profits; other companies as much as 50 and 60 per cent. Some companies, working rich veins, have been obliged to stop operations, upon finding themselves unable to pay the royalty contracted for, or upon higher charges being demanded. The question is growing urgent in these times of diminishing productiveness. The poorer qualities of quartz, which would give employment to the most labor, and which in the older fields will soon become the only dependence of the mining industry, can not be worked at all, owing to the practice of exacting royalties. A royalty of 2½ per cent. of the gross product of gold may swallow up 25 per cent. profit on the capital invested in mining poor quartz lodes or poor alluvial leads. The freeholders, who receive thousands of pounds per annum from mines found on their estates, purchased the land in most cases from the state at one pound per acre. The Government proposes to tax the royalties they receive, and to impose different conditions as to mining rights on the lands to be sold hereafter, by which the right of the purchasers to exact royalties will be restricted, and the state itself will receive a royalty from the precious metals.

Victoria took the lead of the mother-country, by passing an act in 1884 amalgamating the two branches of the legal profession.

New South Wales.—The Governor is Lord Augustus W. F. S. Loftus, appointed in 1879. The Prime Minister and Colonial Secretary is Alexander Stuart, who succeeded Sir Henry Parkes in January, 1883.

Finance.—The estimates for 1885 make the total revenue £8,480,000, and the expenditure £8,420,000, leaving a surplus of £270,000.

Legislation.—Throughout the year 1884 parliament was occupied with the elaboration of the land laws that are to take the place of the Robertson system, which, after twenty-two years of trial, was condemned by an overwhelming popular majority in the election of 1882. The session of 1883 was prolonged into 1884, and did not close till November 1st, a full year from the time of meeting. The reason for this unprecedentedly long session was to reach a settlement of the land question, because farming operations and land transactions remained in suspense pending that issue. The bill introduced by the Government was a symmetrical and simple measure, which aimed to strike a balance between the interests of the squatters, or lessees of state lands, whose enormous flocks constitute a large portion of the public wealth, and those of the small graziers or agriculturists who desire to obtain farms by free-selection and purchase. Under the Robertson laws the tenant could only acquire a freehold title to the maximum of 640 acres, and lands on which he made improvements. For every pound's worth of improvements he could purchase at an appraised price a pound's worth of land. This provision, intended to preserve to the tenant his improvements, enabled the squatters to practice one of the worst abuses of the leasehold system. They secured not only the sites on which they placed the dams and wells for their present needs, but by the expedient of putting up movable huts they monopolized all similar spots in advance of their increasing flocks over a wide area. These great runs were thus rendered secure against the encroachments of other squatters and the entrance of free-selectors, and when the rent-appraiser came at the end of five years he had to fix the rent on land, the value of which was destroyed by the abstraction of the watering facilities. The ministerial bill proposed to divide all the runs into two parts. One half of each was to be left open to free-selectors, and the other half secured to the tenant, on a long lease at a low rental, without compensation for improvements. The public domains cover 160,000,000 acres, a large portion of which are leased to squatters. Of the 40,000,000 acres that have been sold the largest part is not fully paid for.

The Legislature authorized the construction of 1,278 miles of railroad. There were on November 1st about 1,600 miles open to traffic, 300 miles having been completed during the year, and 400 miles authorized in previous sessions were in process of construction. The total capital invested was nearly £18,000,000. The railroads returned a profit of 4½ per cent. per annum, and during the previous year left the Government a gain of about £72,000 after providing for working expenses, maintenance, and interest. The new railroads will entail an expenditure of about £14,000,000. Several of them are to be of a lighter and cheaper character than the old lines. The Northern Railway, to connect Sydney with Queensland, has been opened as far as Glen Innes, and will reach the Queensland line within two years.

The Drought, and Industrial Depression.—New South Wales was the greatest sufferer from the drought that has afflicted Australia for the past three years. The colony lost by the water-famine not less than 12,000,000 sheep and a proportionate number of cattle. The squatters, embarrassed by their losses, and uncertain about the pending land legislation, ceased making improvements. The consequence was a large influx of labor into Sydney. The Australian Governments are the largest employers of labor. In consequence of their relation to the labor market, they have had the duty imposed upon them of providing labor to the unemployed and of sustaining the rate of wages. The minimum rate of $2 a day has been accepted as a political principle, together with the eight-hour work-day, as expressed in the cant couplet:

> "Eight hours for work, eight hours for play,
> Eight hours to sleep, eight bob a day."

On account of the stagnation in trade the industrial establishments reduced their force of workmen; but the powers of the trades-unions prevented them from lowering the rates of mechanics' wages. The Minister of Public Works made arrangements to employ all who were out of work; but, in order not to depart too widely from the purpose of the Government to economize expenditures, he offered six shillings a day instead of the popularly established standard, a resolution that excited much indignation among the working-class. Two thousand men had to be dealt with, an official labor exchange was opened, and special relief-works were started in the neighborhood of Sydney for married men. To others who wished it, free passes were given by railway into the country.

Silver Discoveries.—Australia has not heretofore been classed among the silver-producing countries. Ores have been worked in Victoria, and to a larger extent in New South Wales, with moderate success; but the aggregate yield down to 1883 was less than a million ounces. The recent discovery of silver-bearing rock of unexampled richness promises to place Australia ahead of the United States in this industry. Like the silver-mines of Nevada, Australia's wealth of silver lay hidden in a vacant and barren region—in the Barrier Range, a cluster of low, naked peaks in New South Wales, on the South Australian border. The stony stream-beds in the deep valleys are dry for years together. A waterless, saline depression separates the mountains from the hill-country of South Australia. On the eastern side is the Darling river region, which pastures numerous flocks and herds with the help of dams and wells to supply water. Several lodes of rich galena-ore were discovered. One trial invoice, reduced in England, yielded 695 ounces of silver, 20 per cent. of lead, and 6 per cent. of copper per ton. Several others averaged 40 ounces of silver and 67 per cent. of lead. Claims were entered and capitalized for vast amounts before a shaft was sunk. For one claim, an acre in extent, £50,000 was paid. In a few weeks the mining camp of Silverton sprang up from the wilderness into a town of 2,000 inhabitants. In the Thackaringa district, on the South Australian side of the boundary, thick seams were discovered which assayed £9 to £30 per ton. The ore-beds extend over an area sixty miles long and from twenty to thirty miles broad. Rich as are some of the galena-ores, it is the black silver or sulphate ores that constitute the peculiar wealth of this region. Black rock, which was at first cast aside as worthless, assayed as high as one third of its weight of pure silver. In the Apollyon mine is a mass of mineral eighty feet long and fifty feet deep, the poorest of which contains 7,000 ounces of silver to the ton, and the best 22,000 ounces.

Queensland.—The Governor of the colony is Sir Alexander Musgrave; the Premier, T. T. McIlwraith. The Queensland Government has taken up in earnest the question of identured black labor, by which wealth has been rapidly produced, but the settlement of the country retarded. Arrangements have been made for bringing laborers from Great Britain and the Continent. Legislation is in progress for the settlement of the public lands in a manner to encourage immigration and the development of the natural resources of the country, and to yield an adequate return to the state. Railroads are being extended to the limits of the settled districts, and a new line is projected from Cloncurry to the Gulf of Carpentaria. The labor trade of the Pacific is to be subjected to stringent regulations. Recruiting labor in New Guinea and New Britain is prohibited.

South Australia.—The Governor is Sir W. C. F. Robinson. A new ministry was formed in June, composed of the following members: John Colton, Premier and Chief Secretary; W. B. Rounsevell, Treasurer; C. C. Kingston, Attorney-General; J. Coles, Commissioner of Lands; T. Playford, Commissioner of Public Works; R. C. Baker, Minister of Education.

Western Australia.—The Governor is Sir Frederick N. Broome. This Crown colony is the largest in extent, but the least progressive, of the Australasian commonwealths. The soil is too poor for agriculture, except in a few localities, and the rainfall is deficient. Even sheep-farming, which is the largest industry, is but very moderately successful, owing to these causes and to the presence of poisonous herbs in the pastures. Notwithstanding the hotness of the climate, the sheep grow heavy fleeces. Nine tenths of the country is covered with timber. The gigantic and valuable jarrah-tree is abundant in the south. The colony produces good wine; also an excellent grade of horses, for which there is sometimes a demand in India. There are lead-mines, which were profitable until the price of the metal declined. The export timber-trade has not met with success. Wealth has increased faster than population. The export and import trade has increased 150 per cent. in twelve years; the number of sheep from 680,290 to 1,259,797; the public revenue from £105,800 to £250,872.

Tasmania.—The Colonial Governor is Sir G. C. Strahan; the Prime Minister, W. R. Giblin. Tasmania is the most salubrious and attractive of the Australasian colonies, with an abundance of natural resources. The monopoly of the land by a few large sheep-farmers countervails these natural advantages and has hitherto checked all development. Annexation to Victoria has lately been agitated as a means of escaping from the rule of these monopolists, who, in order to keep their vast sheep-runs out of the hands of settlers, secured the defeat of a Government scheme of railroad construction in 1883. In 1884 the measure was successfully carried through Parliament. Under the domination of this plutocracy, sheep-farming has displaced agriculture, causing the wheat product to decline 665,896 bushels between 1860 and 1880. Their supremacy is perpetuated by a very limited franchise, which allows only two per cent. of the population to vote for members of the Legislative Council, and disqualifies half the adult males from voting for the popular representatives.

The productiveness of the Mount Bishop tin-mine excited a mining fever. Of the mines opened but few proved at all successful. After being sustained for some time by calls on shareholders, many companies stopped in 1884.

New Zealand.—The Governor is Sir W. F. D. Jervois. The ministry, which was reconstituted in 1883 under H. A. Atkinson, resigned in the beginning of September, 1884, in consequence of a vote of want of confidence passed by the House of Representatives. The new ministry is composed as follows: R. Stout, Premier and Attorney-General; Sir Julius Vogel, Colonial Treasurer and Postmaster-General; E. Richardson, Minister of Public Works; J. Ballance, Secretary for Crown Lands and Native Affairs; J. A. Tole, Minister of Justice; W. H. Reynolds, Minister without a portfolio.

The new Treasurer proposes a conversion of the debt at reduced interest. The revenue for 1884–'85 is estimated at £3,830,000, and the expenditure at £3,770,000. Annual increases in the revenue are expected, sufficient to permit of reductions in taxation, which the new ministry have inaugurated by lowering the property-tax one half.

The Maoris.—After vainly appealing for years to the New Zealand Government to redress their grievances and observe their treaty rights, the Maori nation sent a deputation of chiefs to England in 1883 for the purpose of laying their case before the supreme Government. In 1884 the Maori King, Tawhao, and Major Te Wheoro, one of the native delegates in the New Zealand Assembly, came on the same mission. They asked to have a larger native representation in their own government, petitioned for the creation of a native commission, and demanded that the lands wrongfully taken from their reserves should be restored. In their memorial they set forth facts regarding the violation of the treaty of Waitangi in relation to chieftainship, villages, lands, forests, and fisheries. Wars have been waged against them for the mere purpose of wresting away portions of their domains. The acts of 1862, 1865, 1873, and 1880 were particularly iniquitous measures of confiscation. Lord Derby's answer discouraged the hope of imperial intervention. The Maoris built a hall three years ago, for the separate Legislature to which they aspire. The Maori delegates to the Colonial Parliament are said to be remarkable for their eloquence and capability. The Maori children now receive an elementary education. The people are making rapid advances in civilization, and exhibit a high order of intellectual capacity as a race, but they are fast dying out, having already shrunk in number to forty-four thousand. Te Whiti and the other imprisoned insurgents have been set at large.

AUSTRIA-HUNGARY, an empire constituted since 1867 as a dual monarchy. The Cisleithan Kingdom, or Austria, and the Transleithan, or Hungary, are connected by a common army, navy, and diplomacy, and in the person of the hereditary sovereign. Franz Josef I., reigning Emperor of Austria and King of Hungary, was born Aug. 18, 1830, and ascended the throne in 1848, succeeding his uncle, Ferdinand I., who abdicated. The heir-apparent is the Archduke Rudolf, born Aug. 21, 1858.

Government.—The common affairs of the two monarchies, restricted to military defense and foreign policy, are regulated by the Delegations, consisting of 120 members, chosen in equal numbers from the Austrian and Hungarian legislatures—20 from the upper and 40 from the lower house of each. The common Ministers, responsible to the Delegations, are as follow: Minister of Foreign Affairs and of the Imperial Household, Count G. Kálnocky de Kõröspatak, called to the head of the administration, Nov. 21, 1881; Minister of War, Count Bylandt-Rheydt, appointed June 21, 1876; Minister of Finance, Baron von Kállay, appointed June 4, 1882.

Area and Population.—The area and population of the provinces of Austria, according to the census of Dec. 31, 1880, and of Hungary, according to a return of the Statistical Bureau, published in August, 1883, are given in the following table:

PROVINCES.	Square kilometres.	Population.
AUSTRIA:		
Lower Austria	19,768	2,330,621
Upper Austria	11,982	759,620
Salzburg	7,154	163,570
Styria	22,354	1,213,597
Carinthia	10,327	348,730
Carniola	10,032	481,243
Trieste and District	94	144,844
Görtz and Gradisca	2,918	211,084
Istria	4,958	292,006
Tyrol	26.690	805,176
Vorarlberg	2,602	107,373
Bohemia	51.942	5,560,819
Moravia	22,223	2,153,407
Silesia	5,147	565,475
Galicia	78,507	5,958,907
Bukovina	10,451	571,671
Dalmatia	12,831	476,101
Total	299,984	22,144,244
HUNGARY:		
Hungary	224,018	11,644,574
Transylvania	55,731	2,084,048
Fiume and District	19	20,981
Croatia and Slavonia	23,277	1,194,415
Military frontier	19,238	698,084
Civil population	......	15,642,102
Active army	......	73,147
Honveds and gensdarmes	......	10,561
Total	322,285	15,725,810
Austro-Hungarian monarchy	622,269	37,870,054

The native population of Cisleithania was divided, in respect to language, in 1880, as follows: German, 8,008,864; Bohemian, Moravian, and Slavonian, 5,180,908; Polish, 3,238,534; Ruthenian, 2,792,667; Slovene, 1,140,304; Serbic and Croatian, 563,615; Italian, 668,653; Roumanian, 190,799; Magyar, 9,887; total, 21,794,231.

The population was divided, as to religion, as follows: Roman Catholics, 17,693,648; Greek Catholics and Armenians, 2,536,177; Oriental Greek and Armenians, 493,542; Protestants, 401,479; Israelites, 1,005,394; Old Catholics, 6,134; other creeds, 7,870.

In the lands subject to the Hungarian crown the population was divided, in respect to language, as follows: Magyar, 6,206,872; Roumanian, 2,325,838; German, 1,882,371; Slavonian, 1,799,563; Serbic and Croatian, 2,325,747; Ruthenian, 345,187; Gypsy, 79,393; Wendic, 83,150; Armenian, 3,523; other indigenous languages, 33,668; foreign languages, 56,892; too young to talk, 499,893; total, 15,642,102.

The different confessions were represented as follow: Roman Catholic, 7,849,692; Greek Catholic, 1,497,268; Armenian Catholic, 3,223; Greek Oriental, 2,434,890; Evangelical, 1,122,849; Calvinist, 2,031,803; Unitarian, 55,792; other Christian sects, 4,645; Israelites, 638,314; other beliefs, 3,626.

The movement of population in Cisleithania in 1882 was as follows: Marriages, 183,378; births, 897,478; deaths, 710,902; excess of births, 186,571.

The movement of population in Transleithania in 1881 is reported as follows: Marriages, 137,025; births, 604,262; deaths, 492,727; excess of births, 111,535.

The population of the city of Vienna in 1880 was 705,402, and that of the thirty-five villages included in the metropolitan police district, 377,752, making with the garrison, of 20,703 troops, a total population of 1,103,857. The population of the other cities of the empire, containing more than 40,000 inhabitants, was as follows:

CITIES.	Population.	CITIES.	Population.
Buda-Pesth	360,551	Theresienstadt	61,367
Prague	162,323	Debreczin	51,122
Trieste	144,844	Holdmezö-Vásárhély	50,966
Lemberg	109,726	Presburg	48,006
Grätz	97,791	Czernowitz	45,600
Brünn	82,660	Kecskemét	44,887
Szegedin	73,675	Linz	41,687
Cracow	66,095		

Commerce.—The following table exhibits the values of the imports and exports of merchandise across the Austro-Hungarian customs frontier from the neighboring countries, from the free port of Trieste, and through the other ports of the empire, for the years 1880 and 1881, in millions of guldens and tenths of millions:

SOURCE AND DESTINATION.	IMPORTS.		EXPORTS.	
	1880.	1881.	1880.	1881.
German Empire	372·3	401·7	403·7	440·7
Roumania	41·2	40·5	52·1	59·3
Italy	24·4	25·2	43·5	46·2
Russia	35·9	34·7	36·6	38·5
Turkey, Servia, and Montenegro	10·5	15·1	11·9	14·5
Switzerland	3·6	3·3	4·1	4·2
Other conterminous countries	115·6	118·8	148·4	162·7
Total by land	487·9	520·5	552·1	603·4
Commerce by sea	119·7	113·9	114·3	114·0
Total commerce	607·6	634·4	666·4	717·4

The values of the imports and exports of the free port of Trieste in 1882 were, in thousands of guldens, as follow:

SOURCE AND DESTINATION.	IMPORTS.		EXPORTS.	
	1881.	1882.	1881.	1882.
European and North African ports	91,601	90,217	104,093	108,409
Brazil	6,363	6,433	1,298	877
United States	10,751	8,850	1,977	1,873
Other American ports	35,759	47,162	4,699	9,970
Total foreign commerce	144,474	152,662	112,062	121,129
Austrian ports	12,697	10,117	22,268	26,360
Total commerce	157,171	162,779	134,330	147,489

The imports and exports of the general classes of merchandise in 1880 and 1881 across the customs line were of the following values, in millions and tenths of millions of guldens:

CLASSES OF MERCHANDISE.	IMPORTS.		EXPORTS.	
	1880.	1881.	1880.	1881.
Food, etc.	189·1	176·3	284·5	305·4
Raw materials	168·2	189·5	130·3	133·7
Manufactured articles	191·2	207·3	215·3	237·5
Miscellaneous	59·1	61·3	36·3	40·8
Total	607·6	634·4	666·4	717·4

The imports of precious metals in 1880 amounted to 32,200,000 guldens, the exports to 22,500,000 guldens; the imports in 1881 to 36,500,000 guldens, the exports to 5,900,000 guldens.

The imports of cereals in 1881 were of the value of 69,900,000 guldens, against 85,900,000 in 1880; the exports 103,100,000, against 106,900,000 guldens. The imports of tobacco declined from 27,700,000 to 20,700,000 guldens, while the exports increased from 7,300,000 to 7,500,000 guldens. The exports of groceries, principally sugar, increased from 64,100,000 to 72,400,000 guldens; those of live animals and animal food products from 59,000,000 to 71,100,000 guldens. The exports of fermented liquors declined from 26,100,000 to 18,400,000 guldens. There was an increase in the imports and a decrease in the exports of fuel, raw metals, and textile materials. In manufactured goods there was an increase in the imports of finished articles of use and luxury as well as of manufacturing implements and half-manufactured goods. The exports of fine manufactures likewise showed an increase.

The exports of sugar in 1883 were 2,580,428 metric quintals, 316,465 less than in 1882. The cultivators of the beet in Bohemia and other parts of the Austrian Empire and the manufacturers of sugar suffered from the crisis in the sugar-trade as severely as the producers of any country. The state and private railroads reduced their tariffs to promote the export, but without avail. Some of the heaviest refining houses in Vienna failed in 1884.

Navigation.—The number of vessels entered at the port of Trieste in 1882 was 6,978; tonnage, 1,226,369; the number cleared was 6,938; tonnage, 1,238,497. The number of vessels entered at all the ports of the empire in 1881 was 47,796, of 6,301,519 tons, of which 20,458, of 5,325,959 tons, were steamers; the number sailing under the Austrian flag was 38,056, of 5,478,240 tons. The tonnage cleared was 6,299,120 tons; the steam tonnage, 5,330,419; under the Austrian flag, 5,476,449 tons. The merchant navy in 1883 comprised 486 sailing-vessels engaged in foreign commerce, of 275,816 tons; 85 coasting-vessels, of 12,695 tons; 74 steamers engaged in foreign commerce, of 72,365 tons; and 52 steamers for the coasting-trade, of 7,250 tons, besides 8,185 fishing-smacks and other small craft.

Railroads.—On the 1st of January, 1883, there were 11,911 kilometres of railroad lines in operation in Austria, and 7,824 kilometres in Hungary. Of the Austrian lines 335 kilometres were owned and managed by the state; 642 kilometres were owned by the state, but managed by companies; 2,031 kilometres were owned by private companies, but managed by the state; and 8,903 kilometres were owned and managed by companies. In Hungary the state owned and managed its own lines, 2,965 kilometres in length, and administered 222 kilometres of private lines, the remaining 4,637 kilometres being owned and controlled by companies.

Telegraphs.—The length of telegraph lines in Austria in 1882 was 36,043 kilometres, of which the state owned 23,544 kilometres, and railroad companies 12,233. The total length of wires was 93,993 kilometres. The number of dispatches in 1882 was 6,626,203. The receipts were 4,191,650 guldens; expenses, 3,531,872 guldens. The length of telegraph lines in Hungary in 1881 was 15,289 kilometres; length of wires, 54,852 kilometres; total number of dispatches, 3,164,054; receipts, 1,669,686 guldens; expenses, 1,903,695.

The Post-Office.—The number of letters, postal-cards, circulars, etc., forwarded by the Austrian Post-Office in 1882 was 341,726,000, of which 97,218,000 were international; the number of newspapers, 75,978,900; the amount of money transferred by postal-orders, 4,941,800,000 guldens, of which 755,300,000 guldens was to or from foreign countries. The receipts of the Austrian Post-Office were 18,104,340 guldens; expenses, 15,113,770 guldens. The number of letters, etc., forwarded in the Hungarian Post-Office was 105,415,000, of which 7,019,000 were foreign; the number of newspapers, 36,747,600; the amount of money forwarded, 1,067,000,000 guldens; the receipts, 6,811,055 guldens; the expenditures, 5,419,610 guldens.

The Army.—The peace establishment of the Austro-Hungarian army numbers 18,676 officers and 271,833 men. The war strength is 32,809 officers and 1,026,130 men, with 204,890 horses, and 1,625 pieces of artillery. The recruiting laws are framed to yield a normal effective of 800,000 men in the field army, 138,000 in the Austrian Landwehr, besides 20,000 riflemen furnished by Tyrol and Vorarlberg, and 205,000 in the Hungarian Honved. The actual war effective of the field army is 800,799 officers and men; of the Cisleithan Landwehr, 121,542; of the Honved, 180,262. Military service is universal and obligatory; three years in the standing army, seven in the reserve, and two in the Landwehr. The excess of recruits over the required annual contingent are added to the Landwehr, except a number, equal to ten per cent. of the annual recruit, who are attached to the field army as a reserve to supply losses in the ranks. The Honved, which can only be employed outside of the lands of the Hungarian crown with the permission of Parliament, is more thoroughly organized and trained than the Landwehr of any other country, and takes part in the autumn manœuvres with the regular troops. The cavalry possesses in time of peace its full complement of horses. The Austrian Landwehr infantry is kept up to the same degree of efficiency; but the cavalry has existed hitherto only on paper. In October, 1883, new regulations went into effect for the organization of a trained and equipped Landwehr cavalry, consisting of three dragoon and three Uhlan regiments to begin with. The horses are bought by the Government and given into the care of private individuals, who keep them in good condition for six years in return for their use, except during five months of the first year devoted to *ménage*, and the periods of tactical exercise, and for full possession when the six years are over.

The Navy.—The Austrian Government has not kept pace with other governments in naval development since the days when Tegetthoff covered the Austrian navy with glory at Helgoland and Lissa. Baron von Pöckh, who succeeded Tegetthoff in the command of the navy in 1871, retired on account of sickness in November, 1883. His successor, Rear-Admiral Sterneck, one of Tegetthoff's most efficient subordinates, was appointed, with the hope of infusing new life into the neglected and sluggish naval service. The first act of the new commander was to form the ironclads into a squadron, and put them through elaborate manœuvres to exercise the officers in the principal design of the present naval armament, which is to keep the Adriatic clear in case of war. The ironclads were then placed out of commission, and four corvettes sent out on cruises to distant parts of the world for the technical improvement of the officers and crews, and for the sake of the commercial advantage of showing the Austrian flag on distant coasts where there are consular agents, or any Austro-Hungarian trading interests. The ironclad fleet consists of 8 casemated vessels and 3 frigates. The unarmored steamers are 2 frigates, 3 close-decked corvettes, 5 open-decked corvettes, 4 torpedo-boats, 7 gunboats, and 10 transports, yachts, etc. On the Danube there are two monitors. The number of officers in time of peace is 533, and of men 6,890.

Finance.—The closed accounts of 1880 make the ordinary expenditures 102,089,579 guldens (the value of the Austrian gulden or florin is 45·3 cents), and the extraordinary expenditures 13,670,415 guldens, including 8,126,613 guldens of military expenses in the occupied provinces; total expenditures, 115,759,994 guldens. The total receipts were of the same amount, made up of net receipts from customs, 4,908,319 guldens; payment from the Hungarian treasury, 2,217,033 guldens; quotas of the two monarchies, 108,634,642 guldens. (The common expenses, beyond the receipts from customs and other sources, are assessed on the two monarchies in the proportion of 70 per cent. on Austria and 30 per cent. on Hungary.) The budget for 1883 fixes the ordinary expenditures at 109,015,472 guldens, of which 4,210,100 guldens are for the diplomatic service, 94,905,161 for the army, 7,815,760 for the marine, 1,958,786 for financial administration and military pensions, and 125,665 for the audit bureau; the extraordinory expenditures at 8,815,296 guldens; total expenditures, 117,830,768. The receipts from various branches of the administration are reckoned at 3,248,780 guldens, from customs 14,670,225 guldens, and the payment from the Hungarian treasury, 1,998,235 guldens, leaving 99,911,763 guldens to be assessed on the two monarchies.

Foreign Affairs.—The reconciliation of Austria and Russia is Prince Bismarck's last and greatest achievement in the interest of European peace. The war-cloud that overcast Europe upon the conclusion of the Austro-German alliance parted with the failure of Russia and France to join in a counter-alliance. But in the Balkan Peninsula, Russia continually stirred the elements of disturbance, and by secret machinations and half-disguised manifestations of dissatisfaction and jealousy endeavored to thwart the political and commercial progress of Austria and the German people in southeastern Europe long after her own internal dangers and the strength of the Central European League afforded a double preventive against the predicted struggle between the Slav and the Teuton. The open encouragement of the Herzegovinian insurgents in the Russian press showed the danger of the situation. The bond of sympathy between the Slav races and the position of the Czar as the traditional protector of the Balkan peoples creates for both powers a situation of perplexity and embarrassment. The fixing of boundaries to their several spheres of interests, so as to obviate jealousy and misunderstanding, is the only mode of meeting in a pacific spirit the difficulties that must arise. The circumstances of the Herzegovinian insurrection, and, still later, the favor shown by the Czar to the Prince of Montenegro, and the marriage of the daughter of the latter to the Servian pretender, showed the will and the power of Russia to throw obstacles in the path of Austria. A change in the attitude of Russia was observable in the autumn of 1883, when the Russian troops were ordered back from the German frontier. In January M. de Giers visited Vienna, after conferring with Bismarck at Varzin, a fact which proved the sincerity of the *rapprochement*. When the three Emperors met at Skiernievice in the autumn (see GERMANY), it was seen that a degree of concord has been reached, which clarifies the atmosphere in southeastern Europe, and dispels the dangers of the Eastern question in that quarter. The basis of the Austro-Russian understanding is not known. If Russia has secured the acquiescence of the German powers in the union of Bulgaria and Eastern Roumelia, she has saved her honor in gaining the dearest point of the San Stefano Treaty, and can extend her commercial enterprise and political influence in the direction of Constantinople, while leaving Austria scope to win the Serbs and Albanians, and continue her slow advance toward the Ægean. The question of the division of the Balkan Peninsula belongs to the remote future. Thus far Russia has only succeeded in vexing Austria in the western Balkans, while on the other side Austro-German combinations, depending on the jealousies of the youthful states of Roumania and Bulgaria, and upon the personal predilections of their rulers, have no lasting basis. If Austria-Hungary exceeds the provisions of the Berlin Treaty by incorporating Bosnia and Herzegovina, Russia will naturally seek compensation in the quarter where her greatest interests lie. A cessation of the intrigues and rivalries of the two powers in all the petty states of the Balkan Peninsula would conduce to healthier political conditions in those principalities. The meeting of the Emperors in September does not signify the admission of Russia to the Austro-German military alliance, but, according to the explanation of Tisza in the Hungarian Parliament, assurance of peaceful relations similar to those between Italy and the allied empires.

The Occupied Provinces.—The Turkish provinces, placed under Austro-Hungarian administration by the Treaty of Berlin, have a total area of 61,065 square kilometres. The population of Bosnia and Herzegovina, according to a census taken in 1879, is 1,158,440, comprising 496,761 Greek Catholics, 448,613 Mohammedans, 209,391 Roman Catholics, 3,426 Israelites, 249 of other creeds. The population of the Sandjak of Novi-Bazar is 168,000.

Among the conditions of the friendly understanding between Austria and Russia, which was sealed by the meeting of the three Emperors at Skiernievice, is supposed to have been the withdrawal of Russian objections to the complete annexation of the occupied provinces, in return for which Austria will place no hindrance in the way of the union of Bulgaria and Eastern Roumelia. The Imperial Government is probably in no haste to proceed to the incorporation of Bosnia and Herzegovina, not only because of the difficulty as to which of the two monarchies they should be attached, or whether they should be administered as an imperial province, but for fear of provoking the ill-will of the Mohammedans and hindering the extension of Austrian influence in the Balkan Peninsula by the reforms that must be carried out in order to insure the well-being and contentment of the *rayahs*. Under the convention of April, 1879, the Austro-Hungarian Government undertook merely to administer the laws as they stood. The evils that drove the Christian peasantry repeatedly to rebellion and provoked the interference of Europe remain the same. The lot of the *rayah* is in fact harder than under the pashas. The rents and tithes are collected more rigorously and punctually by the Austrian officials, and to these burdens are added the tobacco monopoly and indirect taxes and the obligatory military service, the introduction of which led to the Herzegovinian insurrection.

The cause of Bosnian troubles has always been agrarian. When the Osmanlis first conquered the country, the land was divided into three parts, one of which was retained by the Sultan; one held as *Vakuf*, or ecclesiastical property, the revenues of which are to this day reserved for the service of the mosques; and one apportioned, on a kind of feudal tenure, among the *spahis*, or Turkish cavalry. The rent was at first one ninth of the products; but after the janizaries, or foot-soldiery, acquired rights in the land, the *kmets*, or peasants, were gradually reduced to wretched serfdom. The rent was increased to one third, and finally one half, the product of the land, which the peasant had to deliver at his landlord's house. After the great insurrection of 1850 the land laws were modified, through the intervention of the powers. Rent was fixed at one third of all products, except the hay-crop, of which the landlord received one half. If buildings, stock, and tools were furnished by the landlord, he was paid even shares with the tenant. This system is still in force. When first put in practice it was evaded by regulations forbidding the *kmet* to gather his crops until they had been viewed by the *beg*, or landlord, even though, as frequently happened, owing to the absence or carelessness of the landlord, they rotted on the ground; requiring him to pay his *tretina*, or third, as assessed on the standing crop at the inspection, though it might be partly or wholly destroyed before it could be garnered; and making the rents payable in gold, though for lack of communications it was often impossible to market the grain. The new land law provided that Christians could acquire property in land, and that tenants could not be evicted except for cause and by magisterial decree. The enforcement ot the new laws by Omer Pasha resulted in a sanguinary outburst of fanaticism and an exodus of Christians into Croatia and Slavonia. This led to the first interposition of Austria, and a new edict of the Porte in 1859, for the protection of the tenantry. By 1875 the conflict had again reached a pitch where the Porte was powerless to enforce the laws. When the Austro-Hungarian Government assumed the administration it promised to have the existing laws judicially tested and impartially executed. The decisions that have been pronounced regarding the landlord's share in the crops, the mode of its appraisement, and the conditions of payment, betray a bias in favor of the landlord rather than in the interest of the *rayah*. The Austrian officials, mostly young and inexperienced men, associate with the wealthy Mussulman land-owners, but have no unofficial intercourse with the peasantry. The bureaucratic formalism of the authorities bears harder on the people than the easy-going Turkish *régime*, under which, in bad seasons, they could by bribes and petitions escape part of their taxes and rents, or have the payment deferred. The chasm between the Government and the people is widening. The economic condition of the country has visibly deteriorated, in spite of improved means of communication, the cultivation of new lands, the colonization of German laborers, and other local remedies. The increase of brigandage, and the sympathy of the people for the *haiduks*, or highway robbers, are symptoms of the impoverishment of the peasantry and their alienation from the authorities. Besides the perennial agrarian question and the pressure of the taxes, the Bosnians suspect the Austrians of a design to suppress their nationality, the evidence of which they see in the recruiting law and the propaganda of the Roman Catholic religion. Among their complaints is that of the lack of schools in which their own language is used. The land question, however, transcends all other causes of disaffection. They expected under Christian rule to be free forever from their Mohammedan oppressors, and to become the owners of their lands. Austria has disappointed them, and seems to have assumed the government only with the intention of handing them over again to Turkey, with their fetters more firmly fastened than before they first attracted the intercession of Europe. Hence the agitation in favor of union with Servia. Their Servian brothers, they think, would drive out the *begs*, and restore to them the heritage of the land. A reform of taxation would afford a partial relief; but the Austrian Government is precluded from any effectual readjustment, since the only property-owning class, the Turkish landlords, is exempt from taxation. When the provinces are definitively annexed there will be an irresistible demand for a radical solution of the land question. The most likely plan is the creation of a peasant proprietary by the expropriation of the landlords and the *vakuf* by means of a credit operation and the repayment of the purchase-money through a long series of years by the peasants, a method that has been carried out in many states without fiscal loss.

Austria.—Austria proper, or Cisleithania, has been governed, since the recognition of Hungarian independence, by a twofold Legislature, a central body, called the Reichsrath, and local assemblies, or Provincial Diets, for the individual provinces. The Reichsrath consists of an upper house, or House of Lords, and a lower house, or House of Deputies. The House of Lords is composed of the princes of the blood royal, 14 in number in 1882; the territorial nobility, numbering 53; the archbishops (10), and bishops of princely rank (7); and life-members appointed by the Emperor for distinguished merit and ability, in number 105. The Abgeordnetenhaus, or House of Deputies, consists, under the electoral law of 1873, of 353 members elected by four different constituencies: 1, the people of the rural districts; 2, the people of the towns; 3, the chambers of commerce in the large towns; 4, the large landed proprietors.

The Cabinet.—The President of the Council of Ministers is Count Eduard Taafe, Minister of the Interior, appointed Aug. 12, 1879. The minister of National Defense is Major-Gen. Count Z. von Welsersheimb, appointed June 26, 1880. F. Ziemialkoffsky, appointed at the formation of the ministry, holds no portfolio. The Minister of Agriculture is Count Falkenhayn, one of the original ministers. Count S. Conrad von Eybesfeld, appointed Jan. 17, 1880, directs the department of Public Worship and Instruction. Dr. J. Dunajeffsky, Minister of Finance, entered the Cabinet June 26, 1880. The Minister of Commerce and National Economy is Baron F. Pino von Friedenthal, and of Justice A. Prazak, both appointed Jan. 4, 1881.

Finance.—The product of taxes increased from 302,851,000 guldens in 1876 to 347,034,000 in 1881, the increase in the direct taxes being from 90,942,000 to 93,608,000 guldens, and in the indirect taxes from 211,909,000 to 253,426,000 guldens.

The budget estimate of receipts in 1881 was 409,645,994 guldens; the actual receipts 441,939,940 guldens; the estimated expenditures, 463,112,304 guldens; the actual expenditures, 477,785,771 guldens. The budget for 1883 makes the total gross receipts 463,765,371 guldens, and the total net receipts 333,072,525. The revenue from direct imposts is estimated at 92,905,000 guldens, of which the land-tax furnishes 33,000,000 guldens, the house-tax 26,505,000; industrial imposts, 9,500,000; the income-tax, 23,000,000, and arrears, etc., 900,000. The customs revenue is placed at 42,764,196 guldens, and the cost of collection at 27,893,340 guldens. The excise duties are expected to yield 85,358,600 guldens, of which 22,200,000 guldens are derived from beer, 7,500,000 from spirits, 4,113,000 from wine, 4,930,000 from the cattle-tax, and 37,209,000 from sugar; the cost of collection is estimated at 12,482,940 guldens. The yield of the salt monopoly is estimated at 19,682,000 guldens, cost of collection 3,017,000 guldens; tobacco monopoly 67,800,000 guldens, cost of collection 24,061,300 guldens; stamps, 16,730,000 guldens net; legal dues, 32,177,000 guldens; the lottery 20,223,000 guldens, cost of collection 12,459,000 guldens; postal receipts 20,140,000 guldens, expense of administration 16,249,430 guldens; telegraph receipts 4,500,000 guldens, expenses 3,577,970 guldens; railroad receipts 17,750,710 guldens, expenses 19,398,853 guldens; receipts from domains and forests 3,992,000 guldens, expenses 3,152,000 guldens; receipts from mines 6,143,711 guldens, expenses 5,308,100 guldens. The ordinary expenditures are estimated at 432,772,959 guldens; the extraordinary expenditures at 59,186,877 guldens; total, 491,959,836 guldens, showing a deficit of 28,194,465 guldens. Of the extraordinary expenditures 32,350,118 guldens fall within the year, and 26,836,759 guldens cover the following year, ending March 31, 1885. Of the ordinary expenditures the principal heads are as follow: Ministry of Finance, including costs of collection, 97,846,375 guldens; matricular share in the common expenses, 86,185,189 guldens; Ministry of Commerce for railroads, posts, telegraphs, post-service, etc., 39,302,903 guldens; Ministry of Justice, 19,759,400 guldens; Ministry of Worship and Instruction, 16,011,395 guldens, of which 4,193,470 are for worship, 10,630,595 for public instruction, and 1,187,330 for general expenses; Ministry of the Interior, 15,691,500 guldens, of which 6,078,150 are for public works, 3,588,000 for police, and 5,521,000 for civil administration; Ministry of Agriculture for domains, mines, the royal stud, etc., 10,688,902 guldens; Ministry of National Defense, 8,530,300 guldens, of which 3,624,000 are for the Landwehr and 4,519,300 for the gendarmerie and military police; imperial household, 4,650,000 guldens; civil pensions, 15,143,900; public debt, 117,013,281.

The public debt of the Austrian Empire, contracted before 1868, is treated as the common debt of the two monarchies. The annual interest and sinking-fund charges are divided between the two governments, Austria bearing 70 per cent. and Hungary 30 per cent. There is also a small common floating debt, consisting of 60,500,000 guldens in paper assignats. The charges on the common debt in 1883 amounted to 127,600,392 guldens, of which the Austrian share is 97,283,626, the Hungarian 30,316,766 guldens. The public debt, including the common debt, the provincial debts assumed by the monarchy, the paper assignats, 351,493,000 guldens in currency notes, the floating obligations of the treasury, etc., amounted on Jan. 1, 1883, to 3,227,673,323 guldens, against 3,212,230,337 in 1882. There are besides 154,830,942 guldens of obligations assumed for the commutation of peasants' rents, making a total of 3,382,504,264 guldens, requiring an expenditure in 1883 of 121,161,243 guldens, not including the share of Hungary in the service of the common debt.

Political Situation.—The opportunist policy of the compromise Taafe ministry commands a fluctuating but usually large majority in the Reichsrath by fresh steps each year in the direction of federalism. This mode of "conciliation" satisfies all elements save the once omnipotent but now bitter and desperate German party, which forms a large and hitherto compact minority, still holding about two fifths of the seats in the House of Deputies, yet is helpless in its isolation, and is inclined to give up the fierce contest against the new tendencies, since it has been denied the moral support it expected from Germany, and since its popular constituency is falling away. The combination that forms the majority, and rather drives than follows Count Taafe, is composed of the Czechish and Polish groups, which are struggling for autonomy and the preservation of their respective nationalities and languages, and of the Clerico-Conservative Hohenwart and Liechtenstein Clubs. The small Coronini Club, of Istrians and Italians, votes on some questions with the Government and sometimes with the minority. The regular opposition consists of the German, Centralistic, or Constitutional party, which controlled the Government after the war of 1866, and exercised great influence down to 1879. It fell through its efforts to impose the programme of the Liberal party in Germany upon Austria, to liberalize the social and religious institutions of the country, and Germanize the Czechs and other nationalities. The combination of Czechs, Feudalists, and Clericals, who reversed this policy, have already accomplished more in the direction of decentralization than the Constitutional party did toward imposing the German language and ideas on the Slav peoples by extending the sphere of central authority. Count Taafe, as well as independent politicians, has within a year or two labored to form a middle party that would attract the German elements that can reconcile themselves to accomplished facts, and would enable the Government to resist further tendencies to disintegration.

The War of Languages.—The language question in Bohemia became a more serious matter when it extended from the arena of parliamentary discussion into the field of social life. The success of the Czechs in restoring their national tongue as the language of the courts, of official intercourse, and of instruction, did not settle the question for those parts of Bohemia where there is a preponderant or considerable German element. The German party responded with a proposition to separate from the kingdom the German districts. There followed a social persecution of the Czechs in those districts more grievous than the Germans had suffered in the Czechish districts during the earlier stages of the conflict. In the Reichsrath the Constitutionalists offered a challenge, by presenting Count Wurmbrand's resolution affirming German to be the state language of Cisleithania, which the House of Deputies rejected by 186 votes to 155, after a declaration of the ministry that a statute was unnecessary, since the position of German as the actual language of the state was not assailed. A proposal to refer the language question in Bohemia to a committee composed of members of all the groups, which should codify and harmonize the ordinances in force in the various districts, was broached by the Left and withdrawn when the Czechish party showed a willingness to accept this plan. The Liberals threatened to abstain from legislative work, but changed their mind in order to follow the National Liberals of Germany in the new path of social legislation, offering the normal work-day bill in earnest of their conversion to socialistic principles. The language conflict was transferred to the Bohemian Diet, where the German Liberals fought a losing battle with interpellations and fruitless motions.

Suspension of the Constitution in Vienna.—Austria and Hungary were until recently free from socialistic agitation. For three or four years past refugees from Germany and agents from Switzerland have spread among the industrial population the Anarchist doctrines in a dangerous and revolutionary form. Still, the Governments of the two monarchies felt no inclination to copy the anti-Socialist enactments of Germany. The invitation from Germany and Russia to join in a treaty for the extradition of Socialists and revolutionists was rejected. In 1883 a murder for the sake of robbery was committed by persons who were evidently connected with Anarchist associations. The police began to subject the Socialists to an exasperating surveillance, and to treat them as a *quasi*-criminal class. Collisions occurred, and finally a policeman, Hlubeck, was murdered. On New-Year's-eve a Jesuit preacher in the Vienna suburb of Favoriten, who had offended the Socialists by defending the rights of property, was stoned from the chancel and the congregation dispersed in a panic. On the 10th of January a money-changer, named Eisert, was robbed and murdered in the suburban Marienhilf-Strasse by a band of Socialist desperadoes. A number of revolting crimes, notably the murder of Count Majlath, chief judge in Hungary, and the series of murders committed by Hugo Schenk, who enticed away several women on promise of marriage and killed them for the sake of their money and valuables, alarmed people at this time with the idea of an epidemic of crime. On the 26th of January, in the suburb of Floridsdorf, the detective Blöch, who had been active in tracking out the murderers of Hlubeck, was assassinated. After this deed the Government felt the necessity of providing against a state of terrorism, though still averse to special anti-Socialist legislation. Count Taafe therefore took advantage of an act, passed May 5, 1869, to meet a state of insurrection. This law empowers the Government to suspend constitutional rights in particular localities. On Jan. 30 a decree of the ministry was issued suspending civil rights in Vienna, Kornenburg, and Wiener-Neustadt, the judicial districts of the metropolis. The rights suspended are the inviolability of the post, the guarantee against domiciliary visits without warrant, the liberty of association, the right of assembly, and the freedom of the press. Another decree, based on the law of May 23, 1873, suspends trial by jury, enacting that certain crimes shall be tried by a bench of six judges. Both decrees remain in force till Dec. 31, 1884. Count Taafe had difficulty in finding a majority in the House of Deputies to confirm these decrees. The Constitutional party denounced them as a reactionary stroke aimed against the freedom of political and religious opinions, while among the young Czechs and other liberal sections of the majority there was a reluctance to consent to the exercise of dictatorial powers and the employment of repressive measures.

Anarchist Trials.—The murderer of Blöch, the detective, was arrested while escaping, and was tried in June. He proved to be a shoemaker, named Stellmacher, a young man of remarkable intelligence and resolution, who was deeply versed in socialistic theories, and had been active in their propagation. Facts were revealed showing an organization, with head-quarters in Switzerland, and ramifications throughout Austria-Hungary, for the spread of Anarchist literature. By the confession of Stellmacher, the murder of the detective was conspired by a group of Socialists, who appointed him to perform the act. On the evidence, though meager and conflicting, of members of Eisert's household, he was convicted of the murder of the banker, after confessing that he killed Blöch, and was executed, Aug. 8. Kammerer, the murderer of Hlubeck, and one of the murderers of Eisert, was tried and condemned. Several of the accomplices in the Eisert robbery were arrested. The police soon made up their minds that the two convicted murderers, and a very few other persons, were the only Anarchists that were capable of desperate and criminal deeds. In September they discovered a secret printing-press in the house of a decorative painter named Bachmann. He, with his wife and several associates, who were also arrested, had been engaged since the execution of Stellmacher in printing and distributing black-rimmed circulars of incendiary import, pretending to emanate from an executive committee of the revolutionary party.

Normal Work-Day. — The party of the Left formerly opposed social legislation as obstinately as the German Liberals. But after the conversion of the most influential section of the latter to the principle of social reform, they have recanted the theory of *laissez-faire*, and, in order to regain the sympathies of the working-classes, and to prove their capacity for positive legislative work, inaugurated industrial legislation by proposing a legal limit to the working-day. They copied the Swiss law, which makes eleven hours a legal day's work. The fractions that compose the majority readily acceded to such a proposition, emanating from the party that especially represented the manufacturing class. The effect of the measure, however, was defeated by an amendment, which passed by a scant majority, leaving the Ministry of Finance to make out a list of industries, upon representations from the Chambers of Commerce, in which twelve hours' labor will be allowed, which list is subject to revision every three years.

Other Legislation.—The Government made no further progress in their programme of tax reform. Authorization was obtained for the acquisition of several railroads by the state. Additional transfers of state railroads from the central administration to the provincial authorities were effected against the lively resistance of the German Liberals. Notable among the minor legislation was an act according indemnity to individuals condemned by the tribunals whose innocence is subsequently established.

Vienna Cattle Regulations.—Simultaneously with the opening of the new Vienna cattle-market, built at a cost of 2,000,000 guldens, the Lower Austrian Government undertook to regulate prices of beef, which were kept up by a combination between Hungarian cattle-growers and Vienna commission merchants. The dealers refused to use the market, subject to such a control, and transferred the wholesale business to Presburg. In the beginning of April, 1884, the Government issued an order restricting the direct importation of beeves from Presburg, by imposing quarantine and sanitary inspection at the frontier. The order raised a storm of indignation in Hungary, where it was declared to be conceived in the interest of the Bohemian and Moravian stock-raisers. Minister-President Tisza threatened retaliatory measures, and hinted at the abrogation of the Austro-German reciprocity treaty. The measure failed of its purpose. The Bohemian cattle that were offered at the market were below the standard, so that the butchers went to Presburg for their supply. On that account, and because the decree was considered an infraction of the customs union, and was likely to lead to a serious conflict with Hungary, it was rescinded.

Hungary. — The kingdom of Hungary possesses an ancient Constitution, consisting of fundamental statutes enacted at various dates since the foundation of the kingdom in the ninth century. The Constitution was abrogated after the rebellion of 1848, restored in 1860, and extended to its ancient limits in 1867, when the dual compact was concluded with Austria. The Hungarian Diet consists of an upper chamber, called House of Magnates, and a lower, called House of Representatives.

The Cabinet. — The Council of Ministers is composed as follows: President and Minister of the Interior, Koloman Tisza de Brosjenö; Minister Adlatus, Baron B. d'Orczy; Minister of Public Instruction and Worship, A. de Trefort; Minister of the Honved, Lieut.-Gen. Baron Féjervary, who was appointed on the death of Count Guido Raday in October, 1884; Minister of Communications and Public Works, Baron G. Kemény; Minister for Croatia and Slavonia, K. Bedekovich de Komer; Minister of Justice, Dr. T. Pauler; Minister of Finance, Count J. Szápáry; Minister of Agriculture, Industry, and Commerce, Count P. Széchényi.

Finance.—According to the closed accounts for 1881, the ordinary receipts amounted to 284,780,897 guldens; the extraordinary receipts to 203,806,965 guldens; total, 488,587,862 guldens; the ordinary disbursements to 309,729,876 guldens; the extraordinary disbursements to 195,163,961 guldens; total, 504,893,837 guldens, leaving a deficit of 16,305,975 guldens. The total receipts are estimated in the budget for 1881 at 301,029,869 guldens, and the total expenditures at 322,711,484 guldens, showing an estimated deficit of 21,681,615 guldens.

The direct taxes, on lands, houses, industrial establishments, financial societies, capital and incomes, transportation, military exemption, etc., are expected to produce 89,080,400 guldens; the excise duties, 15,734,878 guldens; the tobacco monopoly, 38,363,464 guldens;

stamps, 9,427,320 guldens; legal dues, 14,350,000 guldens; the salt monopoly, 14,276,308 guldens; lottery, 3,472,468 guldens; net railroad receipts, 8,653,510 guldens; mines and mint, 6,765,145 guldens; domains, 4,100,000 guldens; forests, 6,027,381 guldens; posts, 7,554,000 guldens; telegraphs, 1,752,600 guldens.

The principal branches of expenditure are as follow: Hungarian debt, 58,941,489 guldens; share in the Austrian public debt, 30,316,700 guldens; matricular quota in the common expenses, 28,629,410 guldens; commutation of rents, 16,981,174 guldens; commutation of vineyard tithes, 2,372,370 guldens; interest guaranteed to railroads, 10,770,463 guldens; pensions, 4,415,367 guldens; imperial household, 4,650,000 guldens; Ministry of Finance, 54,229,279 guldens; Ministry of Ways and Communications, 29,552,484 guldens; Ministry of Justice, 10,438,431 guldens; Ministry of the Interior, 8,909,687 guldens; Ministry of War, 6,951,200 guldens; Ministry of Agriculture and Commerce, 8,981,486 guldens; Ministry of Worship and Instruction, exclusive of receipts from funds, 4,982,589 guldens; administration of Croatia and Slavonia, 5,842,346 guldens; Diet and Delegations, 1,229,683 guldens.

Of the total product of direct and indirect taxes of the united kingdom of Croatia and Slavonia 55 per cent. are turned into the Hungarian treasury, and 45 per cent. retained for the autonomous administration of the country. The expenditures on the latter account in 1881 amounted to 3,603,464 guldens, of which 1,871,300 were for internal administration, 498,907 for worship and instruction, 1,167,257 for the administration of justice, and the rest for the expenses of the Ban and the Diet.

The public debt, not including the Hungarian portion of the common debt of the empire, amounted in 1882 to 1,118,148,045 guldens. Inclusive of treasury notes and arrears of interest, the amount was 1,225,4´0,183 guldens. The debt has been contracted since 1868, partly to aid the construction of railroads and to purchase railroads, and partly to cover deficits, except 219,887,232 guldens of bonds issued in aid of the conversion of feudal rents. The assets of the state, consisting of domains, forests, mines, railroads, buildings, bridges, movables, credits, and cash, were reckoned on the same date at 1,259,700,000 guldens.

The conversion of the 6 per cent. loan into 4-per-cents was successfully terminated in 1884. This gigantic operation, conducted by a syndicate with the Rothschilds at the head, was begun in Paris before the Bontoux crash, and after the crisis transferred to other centers. It involved the issue of about 550,000,000 guldens of 4 per cent. bonds. They were taken mainly by German capitalists. The amount of 6 per cents redeemed was 400,000,000 guldens. The claim of Hungary for a better rating of her credit is borne out by the success of the Government in re-establishing a balance between the ordinary revenue and expenditure in 1884.

Legislation.—The session that opened September 28, 1881, came to an end May 20th. Among the principal acts of the session are the incorporation of the Military Frontier with Croatia-Slavonia, the conversion of the 6-per-cent. rente, the introduction of a system of gendarmerie, the embankment of the Theiss, and the rebuilding of Szegedin, the act for the regulation and state control of intermediate schools, the extensions of the railroad network and the convention with the Austro-Hungarian State Railway, and the authorization of new Parliament buildings. The Government, upon the reassembling of the Diet in January, sustained a blow from an unexpected quarter. When the subject of obligatory civil marriage was brought up in 1883, the Government did not venture to proceed beyond a resolution, which was passed November 24th. In January the ministry proposed a law legalizing marriages between Christians and Jews. Such a law has long existed in Austria. The Premier specially identified himself with the project, which was promptly passed by more than the normal majority. An agitation was then set on foot by the Clerical Conservatives and the Anti-Semites. Magnates who never entered the legislative hall were summoned in sufficient number to throw out the bill in the Upper Chamber. It was the first time that the House of Magnates had ventured to assert their legislative powers in opposition to the Government. The bill was sent up a second time, and again voted down by a bare majority, which included Austrian noblemen who possessed no interest in Hungary, except the hereditary right to sit in the House of Magnates, who came in sufficient numbers to turn the scale. The members who appeared for the purpose of defeating the measure were mostly frivolous young nobles, with no serious motives.

The New Parliament.—The elections for the next triennial session took place in July. The Liberal or Government party maintained its preponderance, electing 230 members. The Moderate Opposition returned 60. The party of Independence, otherwise called the party of '48, elected 75. The Anti-Semitic party obtained 21 seats and took their place for the first time as an organized party. The unattached members, or "Savages," who usually vote together and with the Government in most questions, hold ten seats. The groups representing the non-Magyar nationalities are the Transylvanian Saxons, whose 14 members act in concert with the Moderate Opposition; the 40 Croatians, who are usually found in alliance with the Government; and 6 Roumanians and Serbs. The Government commands a majority of more than 50 over all the opposition parties and groups, not counting the 50 Croatian and "Savage" votes.

The ministry set before the new Parliament, besides important tasks, an extensive programme of parliamentary reform. The action of the Magnates on the bill to permit mixed marriages between Hebrews and Christians precipitated the question of reforming the obsolete constitution of the Upper House. The House of Magnates is the largest Upper Chamber in the world, containing from 700 to 800 members. For many years past seldom more than 50 or 60 have taken part in the deliberations. The House has attempted neither to initiate, amend, nor reject legislation, but has contented itself with allowing the regular attendants formally to approve the enactments of the Chamber of Deputies. The list of Magnates comprises the princes of the blood royal, who own lands in Hungary, 2 in number; 50 or 60 dignitaries of the Roman Catholic, Greek Catholic, and Oriental Greek Churches; 10 Barons of the Empire and the Count of Presburg; the 68 Counts Palatine, who are simply Government officers; 18 princes; 386 counts; 288 barons; 2 Deputies of the Croatian Diet; and 5 regalists of Transylvania. Tisza's scheme of reform cuts down the representation from the hereditary nobility, all of whose male members have held a seat by right of birth. The Esterházy, Zichy, Szapáry, Bathyany, and other great houses, furnished twenty or thirty peers each. In the reformed House of Magnates only those noblemen have a seat who pay 3,000 guldens of land-taxes. Magnates naturalized in Hungary are not to lose their seats if they sit in the Austrian Upper House. To the spiritual peers are added representatives of the Evangelical, Calvinist, Unitarian, and Jewish bodies. Another feature of the scheme is the creation of life-peers, not to exceed one third of the total number, from the ranks of citizens who have distinguished themselves in any sphere of public life.

The plan by which Koloman Tisza proposes to reform the Lower House is by changing the duration of the Legislature from three years to five. The motives for this seemingly reactionary step are to prevent the petty gentry, who constitute the bulk of the representatives from ruining themselves in election expenses, and to minimize the excitement, the abuses, and the scandals of the periodical elections.

A third measure is the enlargement of the disciplinary powers of the parliamentary presiding officers, which have been limited to the right to call to order, and, if the member prove refractory, to administer a rebuke.

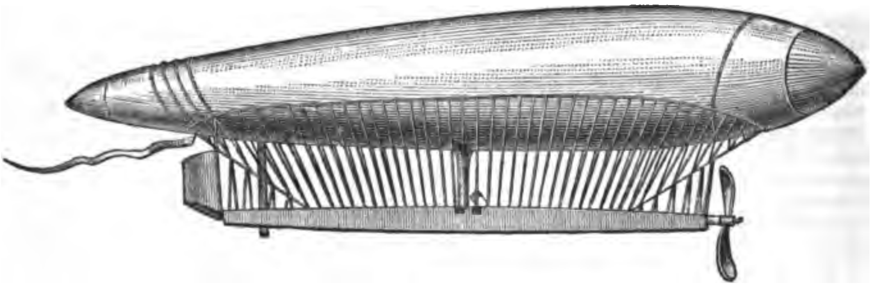
The Croatian Question. — The episode of the escutcheons has united the Croatians in as strong a determination for independence from Hungary as that which fired the Hungarians in their struggle with Austria. After the revolution of 1848, the Slav provinces of Croatia, Slavonia, and Dalmatia were severed from Hungary. A year after the establishment of the dual monarchy, Croatia, Slavonia, and a part of Dalmatia, merged into a single state, were reunited with the Magyar Kingdom. The compact of union was carried through under pressure by a Magyarophile Ban, and was so unpopular that in 1871, three years later, the National party, which represented the Croatian sentiment of national independence, gained a majority in the Diet. The Hungarian Government dissolved the Assembly, and when a still larger Opposition majority was returned, would have proceeded to more arbitrary measures if the Nationalists had not offered to come to terms. They agreed to uphold the compact on the promise of concessions and benefits, but soon sank into the position of a Government party, neglecting to demand the fulfillment of these pledges, practicing the same official and military pressure at elections, and perpetuating the administrative abuses that they had denounced when in opposition. Those of the party who were dissatisfied with the treatment of Croatia by the Hungarian Government, and with the practices of the party in power, seceded and constituted a Moderate Opposition, under the name of the Independent National party. A Radical Opposition, which aimed at complete independence, grew up under the lead of Antun Starchevich, who was at first almost the solitary representative of the Great Croatian idea. They took the name of the Legality party, in reference to their assumption that the compact of 1868 was not concluded in a regular and constitutional manner. The status of Croatia under the compact is variously interpreted in the various parties, and by the Hungarian Government, which has treated it as a province or land of the crown, with certain guaranteed autonomous rights, while certain Croatian jurists insist that the union is personal, with a common Legislature for common purposes, of the same nature as that which subsists between Hungary and Austria. The Croatians consider that they are exploited by the Magyars. Of the taxes collected in the land, 55 per cent. go into the royal treasury, only a small portion of which is returned in public improvements or any other useful form. They are cut off from the port of Fiume by differential railroad tariffs, which favor their Hungarian competitors. The popular support of the secessionist and Great Croatian movements is derived partly from the notion that the growing agrarian distress, which is chiefly due to backward agricultural methods and the too sudden breaking-up of feudal and communistic institutions, is caused by the stepmotherly treatment of Croatian economic interests by the Hungarian Government. To this conviction is joined the fear that Hungary intends to destroy the autonomous institutions of Croatia, reduce it to a Hungarian province, and eventually crush out the Croatian nationality and language. Hence the outbreak which Minister Szápary occasioned by replacing the Croatian with the Hungarian arms on a public building. The national aspirations are of various degrees. The movement has grown strong in sympathy with the success of the Slav peoples of Austria in asserting their nationalities, and has received encouragement both from Prague and from Vienna. The more moderate look forward to the revision of the compact securing parity with Hungary and to the restoration of the rest of Dalmatia, with the port of Fiume, so as to complete the "triune kingdom" of Croatia, Dalmatia, and Slavonia. The more ambitious patriots fix their hopes on a triune empire, in which Great Croatia, embracing the whole Serbic and Croatian population in Croatia, Dalmatia, Slavonia, Carniola, Carinthia, southern Styria, Istria, Bosnia, and Herzegovina, shall take a coördinate position with Austria and Hungary.

The Serb Party.—The incorporation of the Military Frontier in 1883 imported a new element into Croatian politics. This district, containing nearly as large an area, and more than half as many inhabitants, as Croatia, was organized in military fashion to prevent raids from the neighboring Turkish provinces. Since Servia has been erected into an independent kingdom, and Bosnia and Herzegovina have been occupied by Austria-Hungary, the reason for military administration is removed. The bulk of the population is of Servian nationality. The incorporated district sends 85 of the 158 members of the Croatian Diet. The Serbic deputies, uniting with the Serbs already in the Chamber, formed a group apart, which played the same *rôle* in the Croatian Assembly as the Croatian delegation in the Hungarian Parliament, demanding in return for their votes concessions in favor of their nationality and religion. Their reward was the recognition of the autonomous rights of the Greek-Oriental Church. The Croatians have always shown intolerance toward the religion and national customs of their Serbic brothers. The intervention of the Emperor formerly shielded the latter from persecution. The Croatian Diet refused to adopt the Hungarian statute of 1868, granting religious and educational autonomy to the Greek-Oriental Church, and passed a school law intended for the suppression of the Serbic schools. Since the incorporation of the Military Frontier, the Serbs constitute 26 per cent. of the Croatian population. Before the passage of the act of 1884, all their religious and civil rights were based upon ancient imperial privileges. The act recognizes the Greek-Oriental Church, and legalizes the Serbic national schools under the supervision of the clergy, with instruction in the Greek Orthodox creed and the use of the Cyrillic alphabet.

The Session of the Diet.—The Hungarian Government suspended the Constitution, and appointed Gen. Ramberg Royal Commissioner, with extraordinary powers, to restore order after the outbreak of the insurrection that followed the substitution of Hungarian for Croatian inscriptions on the Government buildings in Agram. After the suppression of the disturbances, Count Khuen-Hédervary, a Hungarian of German descent, was appointed Ban; Pejachevich, who had refused to restore the Hungarian escutcheons, having resigned. When the National Assembly came together in December, 1883, there was no Government party left. Many went over to the Opposition, and those who remained were too timid to defend the course of the Hungarian Government. Members who spoke in justification of the authorities were hissed from the galleries and mobbed in the street. The Starchevich party uttered the most incendiary language, and allowed no other sentiments to be heard. Soldiers and gendarmes were posted in the chamber to prevent violence, and the leaders of the Opposition were forcibly removed. After a month of violent scenes, the Government obtained a vote of indemnity for exceptional measures taken during the insurrection, and a provisional budget allowing them to collect taxes and pay necessary expenses for six months, and then dismissed the Assembly. After confiscating the chief organ of the Legalists and repressing popular agitation, the Hungarian Government adopted conciliatory measures, such as the employment of the people on public works to relieve distress, and the authorization of railroads in Croatia and the Military Frontier. Before reassembling the Diet in May, the Ban assured himself of a working majority by a bargain with the Serbs. The inevitable arraignment of the Hungarian ministry for a breach of the Constitution in appointing a dictator was framed in moderate terms. The vote of censure pointed out that the Constitution could only be suspended by the crown, on the recommendation of the Ban, and demanded, as a guarantee against one-sided action in the future, the appointment of deputations to consider and declare the principles of the bilateral compact between Hungary and the united kingdoms of Croatia, Dalmatia, and Slavonia. The budget was voted and the arm of the executive strengthened by the suspension of the law making judges irremovable. The debates grew more and more violent. The Speaker again used arbitrary means to silence the patriotic fury of the Radicals. Students of the university encouraged the defenders of national rights, and, when the Government proceeded to investigate these demonstrations, the professors resigned. Magistrates and corporation officials in various towns were dismissed on account of anti-Magyar demonstrations. In July the session was again summarily closed. The adjourned House came together in August to complete the business of the session, which was the last one of the triennial period. After another week of conflict between unbridled license and gag-rule, the Legislature was dissolved. The elections for the new Diet took place in September. The result proved the thorough disaffection of the Croatian people. The National party, by putting forth all the means of pressure at the disposal of the Government, obtained enough seats to make, with the Serbs, a majority. They showed an actual gain of three, or 69 members, about one half of them Serbs, out of the 110 elected. But the Moderate Opposition and the club of "Savages," or independent members, dwindled to almost nothing, while Dr. Starchevich's following increased to 25. The agitation in the country grew more intense. Local officials were removed and replaced by Government commissioners in many places. In Agram the petty state of siege was proclaimed. The new Diet was opened September 30. The transaction of business was a greater impossibility than before. On the 24th of October all the members of the Radical Opposition were removed and excluded from the House by gendarmes. The introduction of Hungarian laws into Fiume furnishes an additional cause of irritation in Croatia. Joint deputations were recently appointed to adjust the matter; but, as the Croatians demanded that Fiume be restored to Croatia, the deputations separated without accomplishing anything. Another grievance is the alleged injustice to Croatia in the adjustment of the financial accounts of the monarchy.

B

BALLOONS, NAVIGABLE. Experiments in aërostatic navigation, made by Capt. Renard, the director of the French military ballooning establishment at Meudon, and Capt. Krebs, his assistant, were more successful than any previous attempt. The first to apply his ingenuity to the problem was Henri Giffard, who experimented with steam in 1855. In 1872 Dupuy de Lôme attempted balloon-steering by hand-power. In 1883 Frederick A. Gower, an American, in France, succeeded in guiding a fish-shaped balloon, of 2,500 cubic metres capacity, with a bronze steam-engine of five-horse power, consuming petroleum gas. The same year Tissandier experimented in a distaff-shaped balloon with a Siemens motor, actuated by a bichromate battery. The brothers Tissandier have worked as assiduously at the solution of the problem as the officers in the Government works. The constructive features and mechanical principle are very nearly the same in both balloons. That of Messrs. Renard and Krebs is elliptical, with conical ends, but with the forward end larger and blunter than the other; while the Tissandier balloon has symmetrical ends. In the latter the propelling screw is behind the car. The Renard-Krebs balloon has a propeller in front and a rudder behind. The steering is accomplished chiefly with the screw, which has a lateral play like a ship's rudder. The same principle has been tried in steamships to increase their steering capacity, but is impracticable, because no metal is strong enough to withstand the resistance of the water. In the Meudon experiments the balloon had a length of 50·42 metres, a diameter of 8·40 metres, and a cubic capacity of 1,864 metres. It was filled with hydrogen gas, and sustained a weight of 2,000 kilogrammes. The motors were Faure accumulators of ten-horse power, capable of working at such a rate for four hours. In the first ascension the propulsive power was sufficient to drive the aërostat forward against a light breeze, which blew at a speed of about 18 feet a second. The trial took place Aug. 9, 1884. The balloon rose to the height of about 180 feet, took a straight course to the appointed goal, over four miles distant, described a curve of 300 metres radius, and sailed back to the starting-point, descending in a slanting direction to within a few feet of the earth, where the machine was reversed and stopped, and the balloon pulled down by a rope. A second trial was a failure, because a stronger wind was blowing, and one of the storage batteries refused to work; but a third ascent, made in November, was entirely successful. The balloon went through evolutions in the air and descended at the point of departure, as in the first voyage.



RENARD AND KREBS'S BALLOON.

BAPTISTS. I. Regular Baptists in the United States.—The "American Baptist Year-Book" for 1884 gives statistics of the regular Baptist churches in the United States, of which the following is a summary: Number of associations, 1,196; of churches, 27,913; of ordained ministers, 17,327; of members, 2,474,771; of Sunday-schools, 15,939, with 134,395 officers and teachers, and 1,118,129 pupils; number of additions by baptism during the year, 111,932; benevolent contributions, $6,996,105.

Of literary institutions, 6 theological institutions return 47 instructors and 496 students; 33 colleges and universities, 303 instructors and 4,867 students; and 60 academies, institutions, seminaries, and female colleges, 417 instructors and 7,551 students.

Including the West Indies, the churches in North America return 1,220 associations, 28,833 churches, 17,928 ministers, 2,574,084 members; baptisms during the year, 113,667.

The Baptists are represented in South America by 8 churches, 4 ministers, 228 members, and 5 baptisms, in Brazil.

The "Year-Book" gives for Europe, 67 associations, 3,191 churches, 2,290 ministers, and 346,918 members, with 7,541 baptisms; for Asia (Assam, Burmah, Ceylon, China, India, Japan, and Palestine), 5 associations, 754 churches, 279 ministers, and 61,493 members, with 4,100 baptisms; for Africa, 3 associations, 85 churches, 31 ministers, and 6,627 members, with 5 baptisms; for Australasia, 6 associations, 186 churches, 88 ministers, and 11,039 members; total for the world, 1,299 associations, 33,007 churches, 20,620 ministers, and 3,000,389 members, with 125,688 baptisms.

The sixtieth anniversary of the American Baptist Publication Society was held in Detroit, Mich., May 21, 22, and 25. The receipts of the society for the year had been: In the business department, $428,295; in the missionary department, $131,881; and in the Bible department, $22,780; making a total of $582,957. Thirty-four new publications had been issued and three new periodicals printed during the year. In the missionary department $13,379 worth of literature had been given away, and was represented in 818 libraries, which had been granted. One hundred and seventy-eight missionaries had been in service, thirty-one of whom were colored, 1,220 persons had been baptized, 46 churches constituted, and 597 Sunday-schools organized. The society was represented by agencies in Germany and Sweden, and had begun a mission in Constantinople. Grants of Bibles and Testaments, in the authorized version, the American Bible Union version, and the Anglo-American revised version, and in several foreign languages, had been made to the value of $15,526.

The fifty-second annual meeting of the American Baptist Home Mission Society was held in Detroit, Mich., May 26. The treasurer reported that his total receipts for the year had been $401,692, or $117,748 more than those of the previous year, and $42,385 more than those of the jubilee year. The indebtedness of the society was $54,330. Six hundred and forty-four missionaries and teachers had been employed, of whom 117 had been engaged in labors among the foreign populations of the country, 170 among the colored people, Indians, and Mexicans, and 357 among Americans. The missionaries had supplied 1,599 churches and out-stations, connected with which were 26,962 members, and 46,129 persons in Sunday-schools, and reported the organization of 145 churches and 2,849 baptisms. The work of the society among foreign populations had been carried on chiefly among the Germans, the Scandinavians, the French (in New England and at St. Anne, Ill.), and the Chinese in San Francisco. The condition of all the German and Scandinavian Baptist churches in the United States, the greater portion of which are self-supporting, is presented as follows in the report of the society:

German: 138 churches, with 150 mission stations supplied by them, 130 pastors, 11,000 members, and 196 Sunday-schools, with 1,655 teachers and 12,262 pupils, 41 students for the ministry. The German Baptists of Canada, 12 churches and 837 communicants, co-operate with the society, and receive aid from it.

Scandinavian: Swedish, 108 churches, 48 pastors entirely devoted to the work of the ministry, 5,705 church-members, 57 houses of worship, and 72 Sunday-schools, with 382 teachers and 2,786 pupils. Norwegian and Danish: 29 churches, 35 ministers, and 1,500 members. Nine missionaries were employed among the French, and reported more than 60 baptisms in New England. A Scandinavian department is established in the Theological Seminary at Chicago, and a French department in the seminary at Newton, Mass. Nineteen missionaries were employed among the Indians, including four teachers in the Indian University. This institution returned 126 students. The missions in Mexico were conducted in the State of Nuevo Leon, in the city of Mexico, and on the border, at El Paso, Texas, and returned about 300 members. The school at Monterey was attended by 127 pupils. The schools among the freedmen now number 15. Two schools for girls had been added during the year, viz., Hartshorn Memorial College, at Richmond, Va., and Spelman Seminary, at Atlanta, Ga. The seminary at Natchez, Miss., had been removed to Jackson. The whole number of pupils in the 15 schools was 2,828.

The seventieth annual meeting of the American Baptist Missionary Union was held in Detroit, May 23d. The Executive Committee reported that the receipts for the year had been $342,443, and the expenditures $350,896. The reports from the mission-fields showed that there were in the Asiatic missions (Burmah, Assam, the Telugus in India, China, Bangkok, Siam, the Bassas in Africa, and Japan) 182 ordained and 630 unordained preachers, 586 churches, and 33,649 members; and in the European missions (Sweden, Germany, France, Spain, and Greece), 870 preachers, 541 churches, and 58,473 members; in all, 1,682 missionaries, 1,127 churches, and 112,122 members. Baptisms during the year, 4,679 in the Asiatic and 7,087 in the European missions.

Southern Baptist Convention.—The Southern

Baptist Convention met at Baltimore, Md., May 7th. The Rev. P. H. Mell, D. D., of Georgia, was chosen president. The Home Mission Board reported that its receipts had been $66,414, and its work had been prosecuted at a cost of about $48,000. The board had employed 144 missionaries, who had served 338 churches and stations, and reported 2,665 baptisms, and 141 Sunday-schools with 5,387 teachers and pupils. A church-building department had been organized in November, 1883, for the purpose of assisting destitute churches by loans in building and repairing their houses. It appeared that there were, in the 164 associations heard from in the Southern States, 612 churches that had no houses of worship. The department had helped twenty-three churches, and estimated that 2,000 church-buildings were needed, for which the sum of $500,000 would be required. Theological instructors had labored among the colored people in Georgia and in Texas. The mission among the Indians, with the Levering Manual Labor School, had been continued. The convention adopted resolutions respecting the colored people, recognizing their claim to assistance, and advising that the work of instruction among them be continued; and, with respect to the Indians, that the success of the work thus far among them justified its continuance, advising that that people be encouraged to build for themselves neat houses of worship, and favoring the preaching of the gospel among the wild tribes. The receipts of the Board of Foreign Missions had been $80,465, the largest amount ever returned in one year. This sum, with the balance of $6,160 from the previous year, gave the board $86,625 at its disposal. The Women's Auxiliary Societies had contributed $16,895 to the treasury of the board. Reports were made from the missions in West Africa, Italy, China, Brazil, and Mexico; in connection with which were returned 95 missionaries (native and foreign), 42 stations and out-stations, 1,141 church-members; contributions of $1,077; 684 Sunday-school and other pupils; and 175 additions. An account was given to the convention of the Kabyles of Algeria as a people among whom it might be expedient to begin a mission. The Southern Baptist Theological Seminary reported the value of its endowment as $220,000; number of students, 118.

The colored Baptists of Kentucky report 45,000 communicants, with a university attended by more than 200 students, and having property valued at $20,000 and a weekly newspaper. Their Women's Educational Convention had raised $1,000 during the year.

Autumnal Baptist Conference.—The third Autumnal Baptist Conference was held in Philadelphia, November 11th, 12th, and 13th. President Weston, of Crozer Theological Seminary, presided. Assigned topics were discussed in papers, followed by volunteered remarks, as follow: "The Value in Education, Secular and Religious," of the Greek Philosophy, Prof. E. B. Andrews, of Brown University; of the Roman law, Rev. P. A. Nordell, of New London, Conn.; and of the English Bible, Prof. John A. Broadus, of the Louisville Theological Seminary; "Missionary Endeavor in its Contribution to Human Knowledge, its Bearing upon the Political and Social Development of Peoples, and its Relation to Self-Support," Rev. Dr. McKenzie, of Boston, Prof. H. H. Harris, of Richmond, Va., and Rev. Dr. Johnson, of Cambridge, Mass.; "Prohibitory (temperance) Legislation," Mr. A. A. Hopkins, of Rochester, N. Y., and Rev. J. W. Willmarth, of Philadelphia, Pa.; "The Conduct of Public Worship in respect to Music, to Prayer, and to the Use of Scripture," Rev. Dr. Robert Lowry, Rev. S. H. Greene, of Washington, D. C., Rev. Dr. T. T. Eaton, of Louisville, Ky.; "Phases of Theological Thought as influenced by Social Conditions and by Philosophic Methods," Dr. W. N. Clarke, of Toronto, Ont., and Rev. Dr. Heman Lincoln, of Newton Theological Seminary; "The Edification of the Church," Rev. Dr. D. W. Faunce, of Washington, D. C., Rev. O. P. Gifford, of Boston, Mass., and Rev. Dr. J. L. Burroughs, of Norfolk, Va.

II. Free-Will Baptist Church.—Statistics of this Church are given in the "Free-Will Baptist Register and Year-Book" for 1885, of which the following is a summary: Number of yearly meetings, 46; of quarterly meetings, 185; of churches, 1,496; of ordained preachers, 1,286; of licensed preachers, 159; of members, 80,913. In addition to the churches regularly connected with the regular quarterly and yearly meetings, there are many other small Free-Will Baptist bodies in the Southern and Western States in substantial agreement in faith and practice with the churches represented in the General Conference. The "Liberal Baptist Year-Book," published in 1884, makes the following estimates of the number of members of other bodies of this kind:

Free Baptist Associations in the United States	13,190
General Baptists	13,225
Separate Baptists	6,829
United Baptists	1,400
Church of God *	40,000
Free Christian Baptists of New Brunswick	10,777
Free Baptists of Nova Scotia	3,415
Total	88,836

These, added to the members of the regular Free-Will Baptist churches, will make 169,249 members in general sympathy with the principles of that body.

The educational institutions of the Free-Will Baptist Church include Hillsdale College, Hillsdale Mich., with nine departments of instruction and 867 students; Bates College, Lewiston, Maine, and the theological school connected with it; New Hampton Institution, New Hampton, N. H.; Nichols Latin School, Lewiston, Maine; Maine Central Institute, Pittsfield, Maine; Green Mountain Seminary,

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* See section under this heading below.

Waterbury Centre, Vermont; Pike Seminary, Pike, Wyoming County, N. Y.; Storer College, Harper's Ferry, W. Va.; Rio Grande College, Rio Grande, Gallia County, Ohio; and Ridgeville College, Ridgeville, Ind. The income of the Education Society for the year ending August 31, 1884, was $8,532; the invested funds amounted to $10,616. The society had aided eighteen students with appropriations of $1,119. The cash receipts of the Home Mission Society were $11,019, and its expenditures $9,824, of which $800 had been added to the invested funds; of these, the permanent fund now amounted to $9,340, and the centennial fund to $900. A church extension department of the work of the society had been opened, in two divisions: one to be known as the loan department, for the reception of funds to be lent to churches for building purposes for a term of years, without interest or security; and the other, known as the gift department, for the reception of moneys to be given to weak societies endeavoring to build churches. The sum of $2,034 had been raised for these objects.

The receipts of the Foreign Mission Society for the year had been $19,268. The permanent fund of the society amounted to $8,700, and the Bible-school fund to about $18,000. The mission is in Orissa and Bengal, India, and returns 438 resident and 128 non-resident members, or 566 communicants, a native Christian community of 1,004 souls, and 3,135 Sunday-school pupils. Forty members had been added by baptism, and the native contributions amounted to 500 rupees. Boys' and girls' schools were maintained at Balasore, a Santal training-school at Bhimpore, a girls' orphanage at Jellasore, other schools at Santipore, Dantoon, Babaigada, and Palasbani; besides sixty-three "jungle-schools," in which were 1,487 pupils.

III. Seventh-Day Baptist Church.—The following return of members of this Church is published in connection with the "minutes" of the General Conference of 1884: Number of churches, 95; number of members—Eastern Association, 2,192; Central Association, 1,533; Western Association, 1,936; Northwestern Association, 2,230; total, 7,891. Number of members in the foreign churches (Mill Yard, London; Haarlem, Holland; Tewkesbury, England; Shanghai, China), 64.

Seventy Sabbath-schools reported 5,528 pupils; and the whole membership of the Sabbath-schools of the denomination was estimated at 585 teachers and 6,000 pupils.

The accounts of the Seventh-Day Baptist Education Society were balanced at $44,957. Reports were made of the condition of Alfred University, Alfred Centre, N. Y., which has an academic department and departments of Philosophy and Didactics, Theology, Industrial Mechanics, Fine Arts, Music, and Business, and was attended by 393 students; and from Milton College, Milton, Wis., which was attended by 258 students.

The receipts of the Seventh-Day Baptist Tract Society had been $10,161, while the amount of its special funds was $8,630. One million seven hundred and sixteen thousand pages of printed matter were on hand in the depository at the time of making the report. The net resources of the printing-house were returned at $9,354. The society was publishing a general weekly paper, a general missionary paper, and a Sabbath-school paper; a quarterly review, which had not proved profitable, and would be given up; and a Dutch newspaper in connection with its aggressive work in Holland. An American Scandinavian paper was contemplated.

The total receipts of the Seventh-Day Baptist Missionary Society, for the year ending September 14, 1884, were $10,239. Besides this, $1,500 had been raised in local contributions. Reports had been received from 28 home missionaries. The foreign mission, at Shanghai, China, returned three missionaries, two native preachers, three native teachers in two day-schools, and 63 pupils.

The Seventh-Day Baptist General Conference met in its seventieth annual session at Lost Creek, W. Va., September 24th. Albert Whitford presided. The new churches of Texarkana, Ark., and Daytona, Fla., were received into the Conference. Upon the suggestion of the Committee on Denominational History, the Conference extended a general invitation to individual members and churches to preserve by writing or printing all noteworthy facts relative to the Church and its work, and to furnish their material, unless they have other use for it, to the committee. The Committee on the State of Religion reported a net increase in the denomination of 143 members, and that the greater portion of the increase was found in connection with what were called the weaker churches. A Woman's Executive Board was constituted for the purpose of enlisting the women of the denomination in its various benevolent enterprises, and of raising funds for the same. A Ministerial Bureau of seven members was constituted, whose duty was defined to be to receive applications of ministers desiring places for work and of churches wanting ministers, and to make such recommendations as they might deem best in all such cases. Resolutions were passed recommending total abstinence from all that intoxicates, as the only consistent and safe principle upon which to carry on the temperance reformation, and declaring it the duty of both national and State governments to prohibit the traffic in intoxicating drinks.

IV. Church of God.—The fourteenth Triennial General Eldership of the Church of God met in Wooster, Ohio, May 28th. Elder George Sigler, of Pennsylvania, was chosen Speaker. The Board of Missions, reporting for three years, stated that it had employed thirteen missionaries for the first, eight for the second, and eight for the third of those years, whose work had been performed in the States of Michigan, Missouri, Nebraska, Kansas, Arkansas, and Texas, and in the Indian Territory, and by whose agency many churches had been organized and many Sunday-schools established. No missionaries had as yet been employed in foreign fields. Arrangements were made during the meeting of the General Eldership for the collection of funds for the foreign missionary work, and a decision was recorded to co-operate with the Free-Will Baptist Board of Foreign Missions. The book-agent reported a business for three years of $8,743. The Board of Publication reported that the Church Hymnal had been completed and three editions of it sold, while the demand for the hymn-book had not diminished. The sales of a tract on the Washing of Saints' Feet having ceased, the copies of it had been gratuitously distributed. The subject of establishing a Book Concern was referred to the Board of Incorporation. The Board of Education had decided to establish an educational institution at Findlay, Ohio, and the buildings for Findlay College were in course of erection there. The sense of the General Eldership was expressed to the effect that brethren moving West would do well to consider the propriety of settling in neighborhoods already occupied by the Church of God, or in colonies, so as to have the privileges of the Church with them. Resolutions were adopted requesting brethren to oppose the "growing desecrations of the Lord's day" by the publication of Sunday papers, theatrical performances, railroad excursions, and opening beer-gardens, saloons, and places of amusement; declaring the question of the prohibition of the liquor-traffic the most important issue before the people, and condemning all kinds of license favoring that traffic; and recommending to the Annual Eldership to require a pledge of abstinence from the use of tobacco from all candidates for license to preach. A directory of the officers and several boards of the General Eldership was ordered published in the Church paper ("The Church Advocate," Harrisburg, Pa.).

V. Baptists in Ontario and Quebec.—The statistics of the Baptist Churches of Ontario and Quebec, by conventions, are as follow: Western Convention, one association, 286 churches, 20,334 members, 964 baptisms during the year; Eastern Convention, three associations, 60 churches, 4,440 members, 178 baptisms during the year; Manitoba and Northwest Convention, 10 churches, 501 members, 47 baptisms during the year; total, 356 churches, 25,275 members, 1,189 baptisms. Including the Grand Ligne Mission Churches, there are also 25 or 30 Baptist Churches within the two provinces, not connected with the associations. The number of members in communion with them is estimated at about 1,100.

VI. Baptists in Great Britain.—The English "Baptist Year-Book" for 1884 reports the statistics of British Baptists: Number of churches, 2,593; of chapels, 3,738; of pastors in charge, 1,939; of members, 304,802; of Sunday-school pupils, 437,187. The number of churches had decreased during the past ten years, but the number of chapels had increased by 566. The increase of Sunday-school pupils during the same period had been about 100,000. The Baptist Building Fund at its anniversary in May returned a capital of £35,620. It had during the year voted 26 loans to the amount of £8,610. Twenty-five new chapels had been opened during the year, and eight had been enlarged. The expenditure incurred had been £31,881, and 5,911 new sittings had been added; but an indebtedness of £32,576 had been contracted.

The ninety-second annual meeting of the Baptist Missionary Society was held in London, April 29th. The total receipts of the society, general and special, for the year had been £59,784; and a debt of £3,215 had been incurred. Report was made of the condition and operation of the missions, as follows: India, 27 principal stations, 180 sub-stations, 46 European missionaries, and 120 native evangelists; Ceylon, 3 principal stations, 73 sub-stations, 3 missionaries, 20 native evangelists; China, 3 principal stations, 62 sub-stations, 10 missionaries, 15 native evangelists; Japan, 1 principal station, 4 sub-stations, 2 missionaries, 2 native evangelists; Africa, West Coast (Cameroons and Victoria), 5 principal stations, 10 sub-stations, 2 missionaries, 6 school-teachers, 8 native evangelists; Central Africa (the Congo), 5 principal stations, 13 missionaries: West Indies, 7 principal stations and Calabar College in Jamaica, 95 sub-stations, 7 missionaries, 43 native evangelists; Norway, 15 stations, 1 missionary wholly supported, 14 assisted Norwegian ministers; Brittany, 3 principal stations, 25 sub-stations, 3 missionaries, 8 native evangelists; Italy, 9 principal stations, 3 sub-stations, 8 missionaries, 10 native evangelists.

The Jamaica Baptist Union returned 2,343 baptisms with a net increase of 1,168 members; 124 churches; and 28,027 members.

The autumnal session of the English Baptist Union was held in Bradford, beginning October 6th. The Rev. A. Glover, of Bristol, presided. A paper was read by the Rev. Dr. Angus, of Regent's Park College, reviewing the statistics of the denomination from 1863 to 1883. It showed that the Baptist churches of England had enjoyed during the period under review a net increase of about 100,000 members, of whom 60,000 had been added during the first ten and 40,000 during the last ten years. The increase of chapel accommodation had kept pace with the increase in population, and had probably done something to provide for the moving of the population and the redistribution of the sittings necessary to meet the altered conditions of different neighborhoods. In all, 204,957 sittings had been provided at a cost of £762,000, or an average of £68,000 a year for the first ten years, and £75,000 a year for the second ten years. Nothing was included in this account for school-rooms, vestries, repairs, decorations, ministers' houses, organs, or interest on chapel debts, and it applied to England alone. At the meeting in behalf of missions, report was made that ten mission-stations had been established on the Congo river, at distances of one hundred miles apart, so as to cover a stretch of 1,200 miles of territory, and twenty missionaries were to be sent out two by two to supply them. The mission in India was to be strengthened, and an additional income of £5,000 was needed for the purpose. The President of the Union made an address on the duties of the Baptist churches toward unbelief and the unbelieving, toward the masses outside of the Church at home, and toward the heathen world.

At the meeting of the Baptist Total Abstinence Society it was stated that one half of the ministers of the Baptist denomination, and 208 out of 226 students in the Baptist colleges, were total abstainers.

VII. Baptist Union of Scotland.—The Baptist Union of Scotland held its annual meetings in Glasgow, in October. It was reported that the denomination now embraces 87 churches and 140 preaching stations and cottage meetings, with 9,517 members, and 79 Sunday-schools, having 926 teachers and 7,687 pupils. The increase of members during the year was 367.

BELGIUM, a constitutional monarchy in western Europe. The House of Representatives is elected in the ratio of one member to at least 40,000 inhabitants, by citizens paying direct taxes to the amount of 48 francs, which restricts the franchise to about one thirteenth of the adult male population. The 132 deputies are elected for four years, one half of the terms expiring every two years. All laws relating to finance and military service must originate in this chamber. The members of the Senate are elected in the same way as the deputies; their number is exactly half that of the deputies, and their terms are twice as long. The reigning sovereign is Leopold II., born April 9, 1835, who succeeded his father, Leopold I., December 10, 1865.

Area and Population.—The area of Belgium is 29,455 square kilometres, or 11,373 square miles. The population at the beginning of 1882 was 5,585,846, or 490 to the square mile. The foreign-born population in 1880 was 143,261, of whom 51,089 were of French origin, 41,391 of Dutch, and 34,186 of German. Of the 5,520,009 inhabitants returned in the census of December 31, 1880, 2,237,868 spoke French, 2,479,746 Flemish, 41,072 German, 420,313 French and Flemish, 35,321 French and German, 2,809 Flemish and German, and 13,534 all three languages. The entire population profess the Catholic religion, except about 15,000 Protestants and 3,000 Jews. The population of Brussels at the close of 1881 was 165,350, with suburbs, 388,781; of Antwerp, 175,636; of Ghent, 133,755; of Liége, 126,238; of Bruges, 44,598; of Malines, or Mechlin, 43,354; of Verviers, 41,692; of Louvain, 36,367; of Tournai, 32,817. The number of marriages in 1881 was 39,487; of births, 183,621; of deaths, 125,217. The net immigration in 1881 was 1,842.

Commerce.—The aggregate imports of merchandise in 1881 were valued at 1,680,900,000 francs, the exports at 1,302,700,000 francs. The countries that figured most largely in the import trade were France, with 334 millions; the United States, 270; England, 255; the Netherlands, 236; Germany, 228; Russia, 126. The export trade was mainly with France, 414 millions; England, 254; Germany, 233; Netherlands, 160. The share of the United States was 42 millions. The values of the general classes of merchandise were as follow, in millions of francs and tenths of millions:

CLASS.	Imports.	Exports.
Food, etc	682·5	284·9
Raw materials	486·8	430·2
Manufactured articles	184·1	408·9
Miscellaneous	326·9	178·7
Total	1,699·8	1,302·7

The imports of cereals were 349 millions of francs, exports 137 millions; imports of colonial goods 68, exports 43 millions; imports of tobacco 17½, of spirituous liquors 27 millions; imports of animal food-products and animals 143, exports 66 millions; imports of fuel 14, exports 81 millions; imports of raw metals 59, exports 112 millions; imports of textile materials 261, exports 95 millions; exports of glass and pottery 54 millions, of textile yarns 134, and fabrics 81 millions, of machinery 56 millions, of paper 22 millions.

Navigation.—The number of steamers entered at Belgian ports in 1881 was 3,201, tonnage 2,733,603; the number of sail-ships 1,835, tonnage, 628,961; total tonnage entered, 3,362,564—in 1880, 3,571,182; total tonnage cleared, 3,331,098—in 1880, 3,554,964.

The merchant marine in 1882 comprised 18 sailing-vessels, of 7,354 tons, and 41 steamers, of 70,486 tons.

Railroads.—The length of railroad lines in operation in 1882 was 4,293 kilometres, of which 3,088 belonged to the state. The receipts from state lines amounted to 119,256,801 francs, expenses 74,642,328 francs; the receipts from lines owned by companies 39,626,462 francs, expenses 21,197,596 francs.

Posts and Telegraphs.—The number of private letters forwarded by the post-office in 1882 was 81,629,309; postal-cards, 22,586,876; newspapers, 88,675,000. The receipts were 12,739,743 francs; expenses, 7,796,598 francs.

The length of telegraph lines in 1883 was 5,851 kilometres; of wires, 26,074. The number of dispatches in 1882 was 3,979,291; receipts, 2,628,597 francs; expenses, 3,425,503.

The Army. — Although a neutralized state, under the guarantees of the powers, Belgium maintains a considerable army for the defense of her territory. It is recruited by enlistments and conscription. The infantry numbers, under the army law of 1873, 25,671 men and 1,676 officers in active service, and about 52,200 men on the war footing; the cavalry, 5,680 men and 296 officers on the peace footing; the artillery, 7,559 men and 466 officers on the peace footing; the engineers, 1,571 men and 135 officers; the train, 377 men and 26 officers. The total effective, including the gendarmerie, is, in time of peace, 46,272 men and officers, with 10,014 horses and 204 pieces of field-artillery; in time of war, 103,683 men, 13,800 horses, and 240 guns. The civic guard in 1881 numbered 30,954 men in active service.

Finances.—The receipts of the treasury in 1880 were as follow:

RECEIPTS.	Francs.
Direct taxes	44,572,000
Customs	21,687,000
Excise	32,243,000
Various taxes	450,000
Registration duties, etc	55,029,000
Tolls and dues	9,481,000
Railroads	109,817,000
Telegraphs	2,615,000
Other revenues	10,157,000
Repayments	6,420,000
Extraordinary receipts	909,000
Total ordinary receipts	292,880,000
Special revenues	101,386,000
Total receipts	394,216,000

The expenditures under the various heads were of the following amounts:

EXPENDITURES.	Francs.
Public debt	82,558,000
Dotations	4,641,000
Justice	15,562,000
Foreign Affairs	2,214,000
Ministry of the Interior	9,462,000
Public Instruction	17,801,000
Public Works	95,634,000
War	44,028,000
Gendarmerie	8,424,000
Finance	15,022,000
Repayments, etc	1,479,000
Total ordinary expenditures	292.020,000
Special services	90,899,000
Total expenditures	382,919,000

The budget voted for 1882 fixed the total ordinary receipts at 296,647.709 francs, and the expenditures at 310,755,895 francs. The budget for 1883 made the receipts 299,571,760 francs, and the expenditures 322,870,816 francs. The total nominal amount of the public debt in 1883 was 1,959,292,744 francs, on which the annual charge is a little over 4 per cent.

Political Crisis.—The movement for the secularization of education in France, extending into Belgium, caused the overthrow of the Malou ministry, which had been in office eight years, in the elections of 1878. Frère-Orban, with Van Humbeek as Minister of Education, accepted the task of reforming the schools on liberal principles. The education act of 1879 repealed the law of 1842, which vested the control of state schools to a large extent in the clergy, and provided that religious instruction should form no part of the regular lessons, but that the priests might have the buildings for that purpose after school-hours. The Government devoted the resources of the state without stint to the improvement of the state schools. A system of public education, unequaled in its pedagogic and sanitary arrangements, was soon developed. The Conservative party identified itself with the Catholic clergy in opposing the "godless schools." Political passion and religious hatred combined divided the people into hostile camps. The antagonism was more bitter than in any other country. The clergy employed the enormous wealth of the Belgian Church in improving the clerical schools, and in establishing others where none existed. Parents incurred spiritual penalties and social ostracism by sending their children to the public schools. In many places Conservatives and Liberals held no communications with each other. The Government were provoked by the furious opposition of the Clericals to reprisals which detracted from the strength of their cause, such as the prosecution of Canon Bernard, the refusal to pay public honors to the Archbishop of Mechlin, and the attempt to suppress the procession of the Holy Blood at Bruges. The Government were put to much greater expense than they anticipated in order to compete with the lavishly endowed Catholic schools. Even in the cities, parents generally preferred religious instruction for their children. Throughout the country the clerical schools were attended by three and a half times as many pupils as the state schools. The serious error was committed of saddling every village with a state school, although in many every family sent its children to the church schools. The expense of these empty schoolhouses and idle teachers, defrayed partly by the general taxes and partly by the local rates, angered the Flemish peasantry, and plunged the Government into financial difficulties.

Extravagant expenditures on the fortifications of Antwerp and the valley of the Meuse, and upon the Palace of Justice, and other improvements at Brussels, swelled the annual deficits, to meet which, and the expense of adding 20,000 men to the reserve of the army, an increase in taxation was necessary. The Radicals, under the lead of Paul Janson, endeavered to extend the contest with the Clericals to other questions, and gave the Catholic party various causes of offense by irritating investigations and menaces against the rights and property of the Church. Their tactics excited distrust, although M. Frère-Orban with firmness confined the anti-Clerical policy of the Government mainly to the establishment of the principle of state education. In spite of the doctrinarian zealotry that imposed the undenominational schools on the unwilling half of the community, and of the fierce popular passions inflamed against them, the Government schools advanced in public favor. The Government went before the people in the biennial partial election to fill half the seats of the Chamber of Deputies, which took place June 10th, embarrassed by an unfortunate financial record and by dissension in the Liberal party. In Brussels the Janson faction, which, besides extreme anti-Clerical views, advocated universal suffrage and a revision of the Constitution, broke away from the Moderates, who divided the representation of the city equally with them. The consequence was a victory, for the first time in forty years, for the Clerical party, which elected its list of 16 deputies by a majority of 1,200. The Clericals gained enough seats in other places to give them a majority of 32 votes in the Chamber of Deputies, as compared with 20 majority possessed by the Liberals in the late Chamber. Ministers Van Humbeek and Olin were unseated.

Change of Government.—The day after the election M. Frère-Orban and his colleagues resigned their portfolios. M. Malou was intrusted with the formation of a new Cabinet. The Ministry of Education, which was created by the late Cabinet, was made a subordinate department of the Ministry of the Interior. The composition of the Cabinet, which was approved by the King June 15th, was as follows: Premier and Minister of Finance, M. Jules Malou; of Foreign Affairs, M. Moreau d'Auday; of Commerce, M. Beernaert; of Public Works, M. Vandenpeereboom; of War, Gen. Pontus; of the Interior, M. Jacobs; of Justice, M. Woeste.

The Senate, which had a Liberal majority of four, was dissolved and the elections appointed for July 8th. Although the Liberals regained the vote of Brussels and Nivelles, the result gave the Clericals the large majority of 25.

The Government inaugurated the new policy by ordering all legal proceedings begun against communes for violations of laws relating to schools, charities, or ecclesiastical administration to be at once dropped. New provincial governors were appointed, a course for which the late Cabinet had been severely condemned by the present ministers in 1878. The King was requested to dismiss the heads of communes and order new elections, but declined. The desire of the Pope to resume diplomatic communication with Belgium, which was broken off in 1880, was notified to the Cabinet and an agreement made to that effect soon after they entered upon their duties. One of the first acts of the Chambers, which met July 22d, was to vote an appropriation for a Belgian legation at the Vatican.

Baron Pitteurs, serving at the time as Minister to Stockholm, was appointed as the Belgian representative at the Vatican in the beginning of November. On the first day of the session the Government presented a new school bill. The principle of the act was to leave every commune free to determine which kind of education it would support. The supervision of the state was limited to seeing that suitable school-buildings with efficient teachers are maintained in every commune, and that compulsory education is dispensed, without charge for the poor. The appointment of teachers and the control of the schools was transferred to the communal councils. To the poorer communes Government subsidies were extended. If the commune establish a clerical school, where twenty or more fathers of families object to religious teaching, separate class-rooms and teachers are provided, or, if necessary, an entire school. Where the commune decides in favor of a secular school, twenty families can demand religious teaching for their children. In allowing conventual schools to be maintained out of the rates, the Jacobs bill went beyond the act of 1842. Three classes of schools were defined in the bill: 1. Public or communal schools; 2. Private schools; 3. Private schools adopted and subsidized by the communes.

Of the votes in the city districts transferred to the Conservative party in the June elections, or to its adjunct, the Independent Moderate party, which decried the centralistic tendencies of the Frère-Orban Government, few were intended to upset the school system. They were a protest against the new taxes, the increase of the army, and the radical programme of universal suffrage. The 16 Independents and Conservatives of Brussels, who gave the Government their majority, were elected on the financial issue. When it was known that the result placed a Catholic ministry in power, the disappointment and dismay in the cities were unbounded. On the night of the elections riots took place in Brussels and Antwerp. Day after day the deputies were hooted at the doors of the Parliament hall. When the burgomaster seemed lax in suppressing such manifestations, the Government would have ordered out the military but for the injunction of the King. As soon as the draft of the new bill was announced, the Liberals arranged a series of demonstrations with the object of inducing the King not to sign the act without giving the country a chance to pronounce upon it by a general election. On August 9th more than 500 town councilors, among them 200 burgomasters, met in Brussels to sign an address to that effect. The authorities of all the cities and of 800 villages, representing 2,690,000 of the population, joined in the protest.

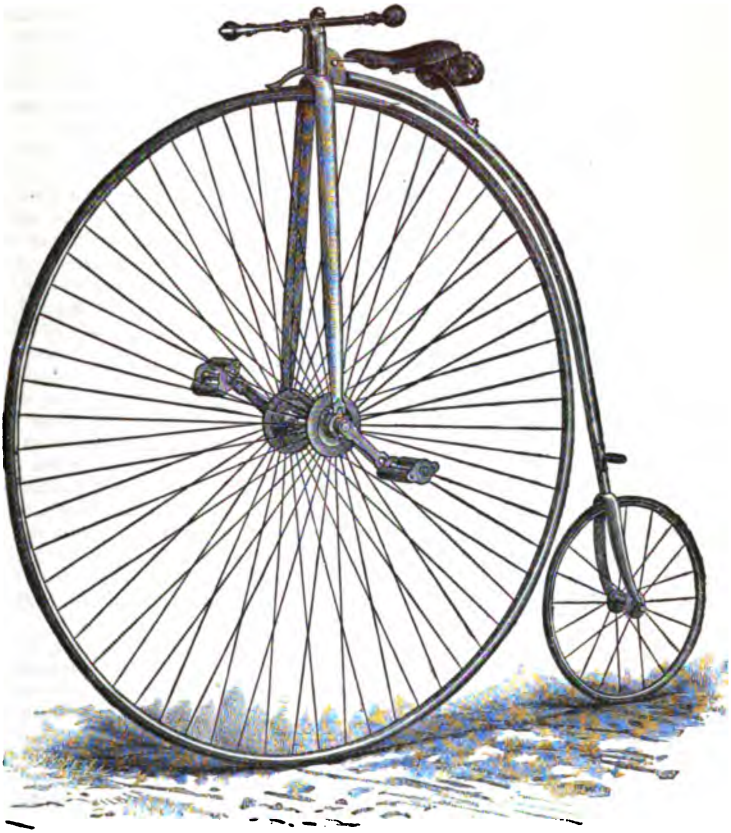
The Malou Cabinet found themselves in an embarrassing position on other questions besides the educational difficulty. They were unable to redeem their pledge not to impose fresh taxes. An increase in the excise duty on spirits was proposed, which would add 5,000,000 francs to the revenue and take over 3,000,000 francs away from the communes. They were also obliged to entertain the scheme of creating an army reserve, which the Minister of War agreed with the military authorities in considering necessary.

The crisis in the sugar industry prompted the Government to propose a bill, which was adopted, for imposing a surtax on foreign sugar to counteract the bounties of other countries. The new French sugar law was expected to close to Belgian producers the French market, which took three fifths of their exports of raw sugar.

On the 31st of August, the day after the school bill passed the Chamber, a monster procession of Liberals marched with a petition to the King's palace. The Clericals organized a counter-manifestation for the following Sunday. As many as 160,000 people were brought to Brussels from all parts of the kingdom. The Liberals gathered in vast numbers on the streets, all wearing a blue flower as a party badge. The peasantry, who composed the bulk of the procession, were as ripe for a collision as the turbulent populace of the town. Some of the inscriptions on their banners expressed in insulting language their ancient enmity toward the people of the capital. But besides the peasants many noblemen, burgomasters, and politicians marched in the line. Black flags indicative of mourning and caricatures of priests hung in effigy were displayed. The citizens were many of them armed with sticks, and in front of the Bourse they blocked the way, and, charging upon the ranks of the demonstrators, carried off many of the obnoxious banners. The countrymen defended themselves stoutly, but the procession was broken up, only 3,000 reaching the palace to hand in the petition addressed to the King. The municipal authorities, who were condemned for not making better provisions against a breach of the peace, requested the assistance of the military. Troops of cavalry charged into the crowd many times, trampling down eighty persons before the mob was dispersed. Many people were injured, but no lives were lost.

The school-bill of M. Jacobs passed the House of Deputies by a majority of 80 to 49, August 30. The only concession made by the Government was to allow discharged teachers an indemnity of 750 francs. When the majority rejected the proposition to require that the clerical teachers should be Belgian citizens, the Liberals withdrew all their amendments. The King postponed for some time the signing of the act. It was promulgated September 22. The Liberals bent all their energies to gain the communal elections in October. They demanded that the King should regard these as a criterion as to whether the country had given Parliament a mandate to destroy the state school system. In the elections of October 19th they won a decisive victory in all the important towns except Mechlin. In these elections the franchise is wider than in the parliamentary elections; it belongs to all who pay 10 francs in direct taxes, and to an additional class of recently created electors. There was a very large vote, however, that had been cast for the Conservatives in the June and July elections which now returned to the Liberals. The King had firmly withstood the clamor that sought to deter him from signing the school law, declaring that he would follow the strictly constitutional course. The expression of the popular will at the polls King Leopold was too wise to ignore. It was one of the rare conjunctures when a constitutional monarch has to determine whether a ministry with a parliamentary majority behind them are the exponent of the national will. The country was on the brink of revolution on account of the educational question. A precedent was not wanting, since in 1857 a Clerical ministry went out in consequence of a party reverse in the municipal elections. The King consequently requested the retirement of the two Ultramontane ministers, Jacobs and Woeste. The Cabinet replied that they must stand or fall together; but, after consultation with the deputies and senators of the Right, the two obnoxious ministers and M. Malou, who refused to remain at the head of affairs, handed in their resignations alone. M. Bernaert succeeded in the premiership, taking the Ministry of Finance; M. Jacobs was succeeded in the Ministry of the Interior by Prof. Thonissen, of Louvain; Chevalier Moreau took the Ministry of Commerce and Agriculture, giving up that of Foreign Affairs to Prince Caraman-Chinay; M. de Volder was appointed Minister of Justice; M. Vandenpeereboom remained Minister of Railways, and Gen. Pontus, Minister of War. The ministers took office as an interim ministry for the purpose of securing the voting of the estimates and dissolving Parliament in the spring or at an early period. They were intrusted solely with the establishment of an army reserve, which Gen. Pontus made a condition of retaining office. The scheme adopted was to form a reserve of 30,000 men by extending to thirteen years the period during which the soldiers who have served their time are obliged to rejoin the army in the case of mobilization.

BICYCLES AND TRICYCLES. Construction.—The bicycle is a vehicle having two wheels in the same plane, connected by a backbone or perch, the fore-wheel having about three times the diameter of the rear-wheel. The fore-wheel, constructed on the suspension principle, has a rubber tire set in a U-shaped rim, direct spokes of small steel wire, and an axle fixed to rotate with it; it is set in such a frame and mounted in such a way as to constitute at once the driving, guiding, and substantially supporting wheel of the vehicle. The remainder consists of a smaller suspension-wheel, similarly constructed (except that its axle does not rotate with it), having its bearings in the lower forked end of a hollow cylindrical perch, which extends upward and in a curved line over the large wheel; at this upper end it takes a swiveled or socket joint perpendicular to the axle, and immediately above the periphery of the large wheel, in a closed head or upper part of an elliptical hollow fork; the perch bears on it a step to mount by, and a saddle and spring for the rider; the fork, extending downward on either side the fore-wheel, has ball bearings for the axle, and extending upward has a cross-bar or handle parallel with the axle below, and of greater length; the fore-axle is provided with detachable cranks, oppositely projecting from its outermost ends at right angles with it, which bear on their loose pins rubber-covered pedals. The whole is so constructed and proportioned as to be propelled, guided, and preserved in equilibrium, by the hands and feet of the rider, who has his position a little behind a perpendicular line passing upward through the axis of the fore-wheel, and so almost directly over the wheel. The radius of the fore-wheel is about the length of the rider's leg, measured inside to the ball of the foot, less the length of the crank and the height of the saddle above its periphery. The vehicle is so light as to be easily portable (the weight of a fifty-inch machine being about forty pounds), and so elastic as to prevent the dangerous shake and jar incident to a rigid machine. It is mainly one wheel, with the necessary adjuncts to make it operative.

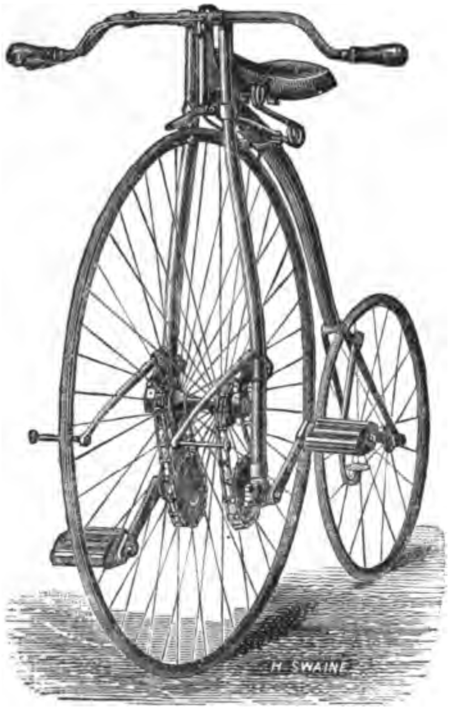


THE BICYCLE.

There are several varieties of vehicles popularly known as bicycles, which differ in some respects from the one described above; the main object of their construction being to give additional safety to the rider. The principal varieties may be described as follows: 1. A machine having the small wheel in front, to be used for steering. The motive power is transmitted to the driving-wheel by two levers, one on each side of the wheel, which are connected by leather straps wound around the hub to two sets of gravity pawls and ratchets. 2. A small machine having a forty to forty-eight inch fore-wheel, and the rear-wheel trailing at a considerable distance behind. The fork is extended about twelve inches below the bearing of the fore-wheel, and projects slightly forward, and to its lower extremities are fastened pedal-levers to which secondary cranks connecting with the axle are jointed. 3. A similar machine, having the fork extended in the same way, but instead of having pedal-levers it has cogged-wheels with cranks attached, connected by means of an endless chain to similar smaller wheels at the bearings. This is called the Kangaroo. 4. A machine having a driving-wheel of the standard size, and a driving apparatus, consisting of short arms working on universal joints at the sides of the fork, to which are jointed bent levers, these being fastened at about their centers to the cranks; the part below the crank, curving backward until it is perpendicular to the upper part, terminates in the pedal. This is known as the 'Xtraordinary.

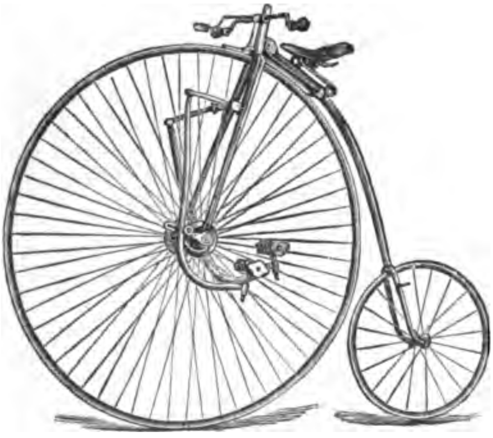
The bicycle, although seemingly a simple thing, is in reality a complex structure, and embodies some of the finest results of modern mechanics, and, as ordinarily constructed, contains nearly three hundred pieces. Only the most important parts, with their principal variations, need description.

The tire is of rubber, round, and of various qualities and densities, and varying in thickness from one inch for the heaviest roadster, to three-eighth inch for the lightest racer; it is stretched about the rim and fastened for greater security with a kind of cement made for the purpose.



THE KANGAROO.

The rim or felloe of the wheel is either U- or V- or crescent-shaped in section, the groove being designed to hold the tire.



THE 'XTRAORDINARY.

The spokes are of either charcoal-iron or steel wire, and are headed at the rim, from which they pass alternately to either side of the hub, where they are fastened to the flanges in one of two ways: 1. By nipples, which are pieces of steel about one inch long, having a screw cut on one end, the other taking the form of a nut; through the center of this, longitudinally, a hole is drilled, the spoke is passed through and headed, and the nipple is then screwed into the hub. 2. By screwing the spokes themselves directly into the hub.

The hub consists of the axle and the flanges; these latter are circular disks of metal about four inches in diameter in the fore-wheel, and smaller in the rear-wheel; they are firmly secured to the ends of the axle, and to them the spokes are fastened.

These parts constitute the suspension-wheel, the theory of which is, that the rim should be a perfect circle and true in its own plane, without reference to the spokes; then these latter suspend the weight at the hub from the rim, and the pull of the spokes all around preserves the circular shape of the wheel.

The bearings are of three kinds—parallel, cone, and ball. Parallel bearings are constructed with a plain axle or spindle, fitted with a plain hardened steel cylinder. Cone bearings are of two kinds: with the ends of the axle in the form of a hollow truncated cone, and the bearings beveled at their edges to fit them; or with the bearings hollowed, and cones on the axle to fit. Ball bearings consist of either a single or double row of balls, introduced between the axle and the bearing-case, substituting a rolling for a sliding friction; these balls are either in a groove continuous around the bearing, or in separate circular holes.

The fork connects the bearings of the front-wheel with the head and backbone, for which it furnishes support, and by it, through the head and handles, the front-wheel is guided and held against obstructions tending to deflect it from its course. It also takes the vertical lift and thrust of the rider when he adds strength to his weight for propulsion, and so must combine with lightness rigidity against forward, backward, lateral, and vertical strain, and the twist of turning the handles. It is usually constructed of flattened steel tubing, tapering gradually from the head to the bearings.

The head is that part above the fork which affords bearing and connections for the perch and the handles.

The perch serves to connect the other parts of the machine, and is subject to much strain. It is a round or elliptical steel tube, tapering from a point below the saddle downward to the point of bifurcation for the rear-wheel.

The saddle is small and nearly heart-shaped, with the small end foremost, and consists of a light, strong frame, over which a piece of leather is stretched taut. It is attached to the spring, which in turn is fastened to the perch immediately behind the head.

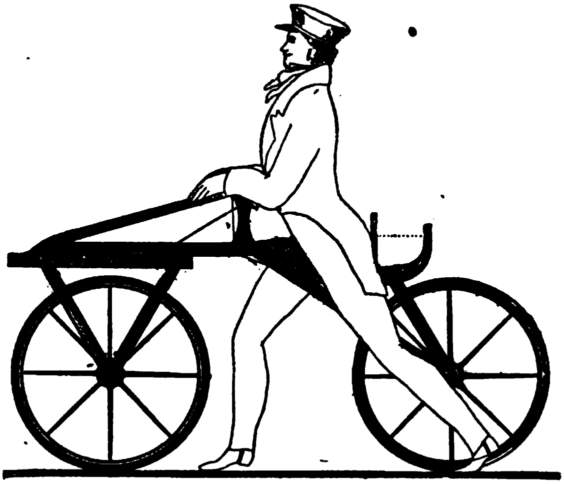
The accessories are a small oblong bag for carrying an oil-can, a wrench, and other tools;

a lamp fastened either to the head or the hub; a bell attached to the handle-bar; a small bag fastened along the perch just below the saddle, for carrying baggage when touring; a luggage-carrier, consisting of a strong wire frame and shawl-strap ingeniously fastened to the handle-bar and the head; a bugle; a whistle; and a cyclometer for measuring the distance covered.

One distinctively American feature of the bicycle is the interchangeability of parts, all being made by machinery, and so made as nearly as possible with absolute accuracy.

History.—Baron von Drais constructed in 1816 a machine consisting of two wheels, one before the other, connected by a bar. The forward wheel was axled in a fork swiveled to the fore-end of the bar, and bearing handles to guide the machine. The rider sat astride the bar, propelled the contrivance by striking his feet on the ground, and directed it by means of the handles, by turning the direction of the fore-wheel. This machine was called the Draisine. In 1818 the Draisine, with some improvements, was introduced into England, and the next year into New York, Philadelphia, Boston, and other places in this country, and for a time it was very popular. Treadles were shortly afterward added to velocipedes of more than two wheels, and in 1868 a Frenchman applied cranks to the fore-wheel of the Draisine or "célérifère," having previously observed that at a certain rate of speed equilibrium could be maintained with it, by deflecting its course according to its inclination. In 1866 Pierre Lallement came to America, and, in partnership with an American, took out a patent for this improved Draisine, or velocipede. For two years no notice was taken of it, but in 1868 it suddenly became popular. Merchants, mechanics, students, all classes of people, even ladies, began to use it. Riding-schools and depots of supply were opened in all the large towns. The furor culminated in 1869, and two years later the "bone-shaker," as it was popularly called, was a thing of the past.

The "bone-shaker" was the parent of the modern bicycle. It had two wheels of nearly equal size, made of wood with iron tires; the saddle being placed midway between the wheels. An Englishman enlarged the size of the fore-wheel, and brought the saddle more directly over it, and decreased the size of the rear-wheel proportionally. Another Englishman invented the suspension-wheel, and an American suggested the rubber tire. All these improvements were made in 1868. The first bicycle was imported from England into this country in 1876, and was exhibited at the Centennial Exposition. In 1877 the first company for importing bicycles was established, and in 1878 the first American company for their manufacture was organized. There are now half a dozen manufacturers, twice as many importers, and hundreds of dealers in all parts of the country. The number of machines annually sold is regularly increasing, and in 1884 was estimated to be about six thousand. The number in use in the United States is not far from thirty thousand, exclusive of boys' machines; the number in use in Great Britain is between two and three hundred thousand. A great drawback to their use here is the poor condition of the roads, and the main body of riders is confined to the large towns and sections of the country where the roads are naturally good.



THE DRAISINE.

Mechanics.—The center of gravity of a bicycle is above the point of support, hence it is in unstable equilibrium. Equilibrium of an unstable body may be maintained when the center of gravity is in motion one way, by moving the point of support the same way, or by moving the center of gravity the opposite way. Suppose, for instance, the machine to incline a little to the rider's left, the center of gravity moves from the perpendicular, and the line of direction is outside to the left of the point of support. Now let the rider throw his weight upon the right handle or pedal, both being to the right of the point of support—it is evident that he shifts the center of gravity to the right, thereby restoring equilibrium; or let him pull on the left handle or push on the right one, and the plane of evolution evidently changes accordingly, the wheel is deflected to the left, bringing the point of support under the center of gravity, thereby restoring equilibrium. By these two methods of balancing, availed of consciously or unconsciously, together or separately, maintaining a compensatory oscillation of the center of gravity over the point of support, the equilibrium of the machine and rider is maintained.

Mathematical computation has shown that, as compared with walking, a given distance can be accomplished on a bicycle in about one third of the time, and with less than one sixth of the exertion. This does not take into account rough roads, hills, nor wind, all of which affect the bicycler more than they do the pedestrian.

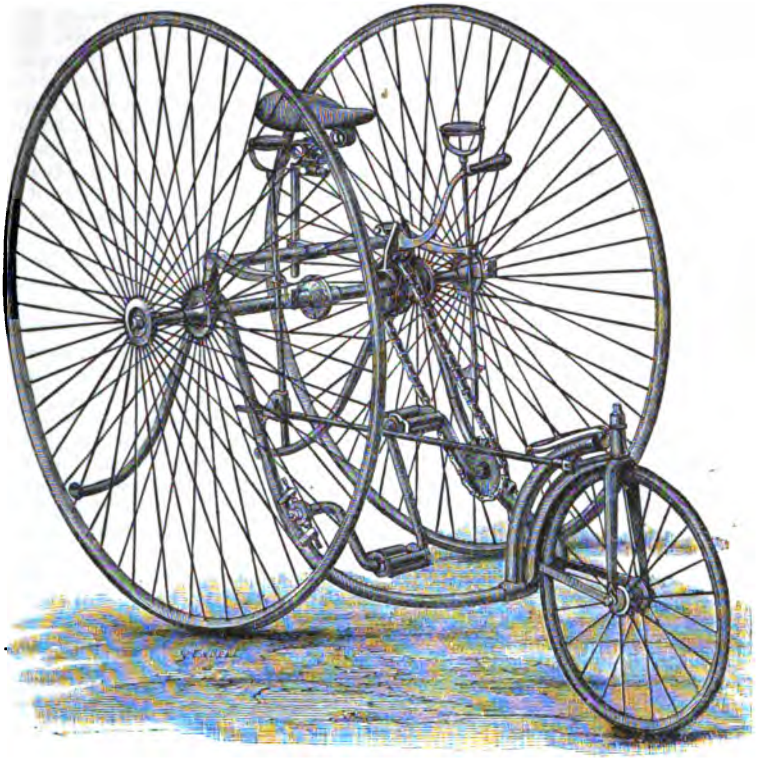
The rake (the backward inclination of the fork from the perpendicular) is an important element in the construction of a bicycle. A certain amount is necessary for safety; an increase of this amount involves a disproportionate loss of energy in propelling the wheel, and a decrease diminishes the percentage of safety and renders the rider unduly liable to forward falls or "headers." It should be about 3·82 inches for a fifty-inch wheel, varying ·07 inch for each size larger or smaller.

THE BICYCLE IN 1865.

Organizations. — The League of American Wheelmen is an association of bicycle and tricycle riders, and riders of other velocipedes, in the United States and Canada, organized at Newport, May 31, 1880, and having for its object "to promote the general interests of bicycling and tricycling; to ascertain, defend, and protect the rights of wheelmen; and to encourage and facilitate touring." Its membership is open to all amateur wheelmen of good standing (including ladies), and numbers about 5,000 riders, from nearly every section of the United States and Canada. Consuls are located at all places of importance, who collect information about the condition and improvements of the roads, mishaps to wheelmen from careless or willful drivers and other causes, tours, etc., and forward it to the president. In this way a vast amount of knowledge of the roads of the country is being collected, a subject of which heretofore comparatively little has been known. At the annual meeting of the League there are generally a parade of all the attending wheelmen in line, races for the League championship, and a banquet. The place of meeting is in some large city, and changes from year to year. The Cyclists' Touring Club is an international organization, whose members are to be found in nearly every country in Europe, in Australia, and in America, where it has a large and constantly increasing membership. The headquarters are in England. The Canadian Wheelmen's Association is an organization similar to the League of American Wheelmen, but designed exclusively for Canadians. Besides these three associations, there are over four hundred local clubs, in all parts of the country, formed for the enjoyment of the pastime, and for promoting the use of the vehicle by the general public. The first club was formed in Boston in 1878.

Periodicals. — "Outing and the Wheelman" is an eighty-page illustrated monthly magazine, devoted to the out-door positive amateur recreations, including bicycling and tricycling, to which it gives the leading place. There are, besides, the "Bicycling World," successor to the "American Bicycling Journal," established in 1877; the "Wheel," the "Western Cyclist," the "Amateur Athlete," which is the official organ of the League of American Wheelmen, and several other wheel publications.

Race-Tracks.—There are many race-tracks in this country, specially constructed for the bicycle. In-door tracks are made either of boards, smooth and closely fitted, or of concrete; and have raised corners, to prevent the wheel from slipping in turning. Out-door tracks are either ordinary clay tracks, well rolled grass-tracks, or cinder-paths. The first-mentioned is sufficiently well known to need no description. The grass-track is a piece of good turf with the grass cut short, and then watered and rolled to make it firm. The cinder-path is the best, and is coming into general use. One of the best of this kind is at Harvard College. It is a quarter of a mile in length, with a home-stretch and back-stretch of 150 yards straight-away, joined by semicircular ends. The width of the track is fifteen feet, and the home-stretch twenty feet. The ground is first removed to the depth of a foot at the sides, sloping to eighteen inches at the center; a blind drain, eight inches wide by five inches deep, filled with round stones, is laid along the center; a layer of broken stone of a uniform depth of six inches is then laid on, and over this a layer of slag or broken granite four inches deep; then comes a layer of coarse cinders, a layer of finer cinders, and on top a thin coating of screenings. The track is then watered and rolled, a process that must be repeated frequently, to keep it in good order.



THE TRICYCLE.

Records. — Some remarkable feats have been done on bicycles. The carriage-road on Mount Washington has been repeatedly ridden down, and a hill in Boston nearly one third of a mile long, with a grade in some places of one foot in seven, has been climbed. The longest "straight-away" ride recorded was from San Francisco to Boston, over 3,000 miles. Two hundred miles have been done within twenty-four hours in this country, and 260½ miles within the same time in England; and 1,404 miles in six days of eighteen hours' riding-time each, by one rider. One hundred miles have been covered inside of ten hours: and 236 miles without a dismount, on an English track.

Below are two tables, the first giving the earliest American records as far as obtainable, the second giving the present records, English and American:

MILES.	Time. h.	m.	s.
1		8	21⅕
2		8	05
3		11	54*
5		21	07*
20	1	46	45

MILES.	English. h.	m.	s.	American. h.	m.	s.
¼			39			38⅕†
½		1	19⅗		1	18⅕
¾		1	59⅗*		1	59
1		2	40⅗*		2	39†
2		5	33⅗		5	42⅖
3		8	30*		8	36⅘*
4		11	24		11	55⅗
5		14	18		14	51
6		17	15*		18	24⅕*
7		20	12*		21	17⅗*
8		23	07*		24	21⅗*
9		26	06*		27	21⅗*
10		28	58*		30	07⅕*
20		58	34	1	5	46⅕
50	2	43	58⅖	2	59	15*
100	5	50	05⅗	6	46	07*

* Records marked * were made by professionals, the others by amateurs.

† These records were all made from a still or standing start. The fastest quarter-mile, with a flying start, is 36⅗s., and the fastest mile 2m. 31⅘s.

Trick-Riding.—This has been carried on to such an extent that there are professionals whose sole business is to give exhibitions of feats of this kind. Some of the most difficult and graceful of their performances are: riding with one foot on the saddle and the other on the handle; balancing, getting on and off, and climbing all over the machine while it is standing still; riding over obstructions, and up and down flights of steps; spinning around on one wheel like a top; riding with the small wheel in the air; riding with the small wheel and a portion of the backbone removed; riding with the entire backbone removed, the only points of support of the rider being the pedals and handles. Besides these, many other difficult feats are performed by both single and double trick riders.

The Tricycle.—This is a velocipede having three wheels upon the ground for support, traction, and steering. In the mechanical means for propulsion by the feet and guiding by the hands, in the arrangement of the wheels, and in other particulars of construction, it offers so many varieties that a general description is impossible. There may be two large wheels and one small one, two small wheels and one large one, or the three wheels may be all of different sizes; the small wheel may be in front or in the rear, may be in the center or in the plane of one of the large wheels; both the driving and the steering may be done either by one or by two of the wheels. The tricycle has the same general principles of construction as the bicycle—suspension-wheel, ball-bearings, and hollow tubing frame.

A three-wheeled velocipede was used and patented in France in 1826, and since then velocipedes of this species have been more or less used, and from time to time improved. The tricycle was in use in very small numbers, both in England and the United States, prior to the introduction of the bicycle; but it is only since the successful and general use of the latter that makers have given tricycles sufficient attention to improve them, and have ventured on the expense of making them with care and accuracy. There is a species of tricycle designed to carry two, which is called a "sociable," and many of them are now in use throughout Europe, and some in this country. The tricycle requires more power to propel it, by about one-fifth, than the bicycle does, is not so speedy, nor perhaps so graceful; but it is more comfortable and safe. In this country several firms are engaged in its manufacture and importation, and its use is growing rapidly.

BLAINE, JAMES GILLESPIE, an American statesman, born at Indian Hill Farm, on Monongahela river, Washington co., Pa., Jan. 31, 1830. He is a great-grandson of Col. Ephraim Blaine, of Middlesex, Cumberland co., Pa., who was Commissary-General of the Continental army, on the staff of Gen. Washington, from 1778 till the close of the Revolutionary War. The family were a part of the colony of Scotch and Scotch-Irish Presbyterians who had settled in the Cumberland valley about 1725. His father inherited a large landed estate in western Pennsylvania, and removed to Washington county in 1818, where in 1820 he married the daughter of Neal Gillespie, a well-known Roman Catholic, a man of wealth, noted in his section for high character and ability. The education of the boy was looked after with great care both by his father and his maternal grandfather, who personally conducted it to some extent themselves. He was sent to school for a time at Lancaster, Ohio, in 1841, where he lived in the family of his relative, Thomas Ewing, at that time Secretary of the Treasury. In his fourteenth year he entered Washington College (Pa.), where he was graduated, the youngest member of his class except one, in September, 1847. He was awarded one of the honors of the class, and delivered at commencement the English salutatory and an oration on "The Duty of an Educated American." He ranked high in mathematics and languages.

After graduation, he was an instructor for some time in the Western Military Institute of Kentucky. During this period he made the acquaintance of Miss Harriet Stanwood, the lady who became his wife, and who is the mother of a large family of sons and daughters. After leaving Kentucky, Mr. Blaine lived in Philadelphia for three years, where he was a teacher in one of the public institutions, and was an editorial writer for a considerable part of the time on the staff of the "Daily Inquirer." Mr. Blaine at the same time completed his law-studies, which he had been pursuing ever since he left college. He had an excellent opportunity in 1853 to enter the law-office of Theodore Cuyler (who afterward became prominent at the bar of Philadelphia), and seriously contemplated the acceptance of this place with the intention of pursuing the law as his profession. But he was induced by a very flattering offer from Maine to remove to that State and enter upon the editorial profession. He settled, therefore, in 1854, in Augusta (Mrs. Blaine's birthplace), and purchased a half interest in the "Kennebec Journal." His partner was John L. Stevens, late United States Minister to Sweden. Mr. Blaine is gifted with an extraordinary memory, and, on assuming his editorial duties, rapidly familiarized himself with the details of Maine politics by reading every issue of the paper in the bound files, from January, 1825, when it was originally established. Under his management, the paper was both a financial success and a journal of great influence; while, both through its columns and through his personal qualities of leadership, Mr. Blaine became powerful in the councils of the Whig and Republican parties. From 1858 to 1861 he edited the Portland "Advertiser," but still retained his residence at Augusta.

In 1856 he was a delegate to the first National Convention of the Republican party, in Philadelphia, which nominated Fremont, and in 1859 he was made chairman of the Republican State Committee, which post he held until 1880. In the same year he was elected to the lower house of the State Legislature. His first public speech was made in Augusta, on his return from Philadelphia in 1856, in response to a request of his friends and neighbors that he tell them about the convention. During the canvass then begun he spoke many times, and since then he has been known as one of the most effective political orators in the country.

In his capacity as editor, he had called attention to the condition of the penal and reformatory institutions of the State, and severely criticised their management. Thereupon Governor Morrill appointed him a commissioner to examine the prisons and reformatories of other States, and suggest improvements in those of Maine. In the discharge of this duty, Mr. Blaine visited fifteen States, and made an elaborate report. Most of his recommendations were adopted, and the penal institutions of Maine were thereby greatly improved.

He retained his seat in the Legislature till 1862, and in the last two years of his service was Speaker of the House.

In 1862 he was elected to the national House of Representatives, where he held a seat by successive re-elections till July, 1876, when the Governor of Maine appointed him United States Senator, to fill the vacancy caused by the resignation of Hon. Lot M. Morrill. Subsequently he was elected by the Legislature, and re-elected for the term ending in 1883. From 1869 till 1875 he was Speaker of the House of Representatives. In Congress he distinguished himself by his intimate knowledge of parliamentary law, his readiness in debate, his advocacy of American as opposed to foreign interests, and his loyalty to the national Government. Oftener than almost any other member he was pitted in debate against those who had taken part in the secession movement.

In the Thirty-eighth Congress he was a member of the Committee on Post-Offices, and was instrumental in establishing postal-cars; in the Thirty-ninth he was chairman of the Committee on War-Debts of Loyal States, and a member of that on Military Affairs; in the Fortieth he served on the Committee on Appropriations. Among Mr. Blaine's more notable speeches in Congress, were those on the ability of the American people to suppress the rebellion; against paying the national debt in greenbacks; in favor of resuming specie payment; against placing the Southern States under military rule with suspension of *habeas corpus;* on removing the political disabilities of Jefferson Davis; in advocacy of the revival of American commerce; favoring a bimetallic currency, with a silver dollar of full intrinsic value with the gold dollar; upon the wrong of suppressing the colored vote in the South, and thus increasing the power of a Southern white voter over a Northern white voter; in favor of restricting Chinese immigration, because it was injurious to the free laborers of the United States.

In the Republican National Convention of 1876, held in Cincinnati, Mr. Blaine was a candidate for the presidential nomination. On the first six ballots he had the highest number of votes, but on the seventh Mr. Hayes obtained a majority and was nominated. Mr. Blaine was again a candidate for the nomination in 1880. In the convention he had 284 votes on the first ballot, against 304 for Gen. Grant and 93 for Senator Sherman; and this number did not greatly decrease till the thirty-sixth ballot, when the opponents of Grant united on Gen. Garfield and nominated him.

On the inauguration of President Garfield, March 4, 1881, Mr. Blaine was made Secretary of State. He was with the President when he was assassinated in the railway-station in Washington, July 2, 1881, and was practically the head of the government from that date until Garfield's death in September. He retired from President Arthur's Cabinet Dec. 19, 1881, and in the same month was chosen by Congress to deliver the oration in the memorial services for the late President, Feb. 27, 1882. This oration, which proved to be one of his finest efforts, may be found, in full, in the "Annual Cyclopædia" for 1882, page 127.

In the National Republican Convention, held in Chicago, June 3–6, 1884, on the first ballot for a presidential candidate Mr. Blaine received 334½ votes, in a total of 820; his chief competitors being President Arthur and Senators Edmunds and Logan. On the second ballot Blaine's vote rose to 349, on the third to 375, and on the fourth to 541—most of his competitors, except Arthur, having dropped out. The nomination, as usual, was at once made unanimous. Hon. John A. Logan was nominated for Vice-President. Mr. Blaine's letter of acceptance was published July 19. The following extracts show its salient points:

> Revenue laws are in their very nature subject to frequent revision in order that they may be adapted to changes and modifications of trade. The Republican party is not contending for the permanency of any particular statute. The issue between the two parties does not have reference to a specific law. It is far broader and far deeper. It involves a principle of wide application and beneficent influence, against a theory which we believe to be unsound in conception and inevitably hurtful in practice. In the many tariff revisions which have been necessary for the past twenty-three years, or which may hereafter become necessary, the Republican party has maintained and will maintain the policy of protection to American industry, while our opponents insist upon a revision, which practically destroys that policy. The issue is thus distinct, well-defined, and unavoidable. The pending election may determine the fate of protection for a generation. The overthrow of the policy means a large and permanent reduction in the wages of the American laborer, besides involving the loss of vast amounts of American capital invested in manufacturing enterprises.
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> The agricultural interest is by far the largest in the nation and is entitled in every adjustment of revenue laws to the first consideration. Any policy hostile to the fullest development of agriculture in the United States must be abandoned. Realizing this fact, the opponents of the present system of revenue have labored very earnestly to persuade the farmers of the United States that they are robbed by a protective tariff, and the effort is thus made to consolidate their vast influence in favor of free trade. But, happily, the farmers of America are intelligent, and can not be misled by sophistry when conclusive facts are before them. They see plainly that during the past twenty-four years wealth has not been acquired in one section or by one interest at the expense of another section or another interest. They see that the agricultural States have made even more rapid progress than the manufacturing States. The farmers see that in 1860 Massachusetts and Illinois had about the same wealth—between $800,000,000 and $900,000,000 each—and that in 1880 Massachusetts had advanced to $2,600,000,000, while Illinois had advanced to $3,200,000,000. They see that New Jersey and Iowa were just equal in population in 1860, and that in twenty years the wealth of New Jersey was increased by the sum of $850,000,000, while the wealth of Iowa was increased by the sum of $1,500,000,000. They see that the nine leading agricultural States of the West have grown so rapidly in prosperity that the aggregate addition to their wealth since 1860 is almost as great as the wealth of the entire country in that year. In these extraordinary developments the farmers see the helpful impulse of a home market, and they see that the financial and revenue system enacted since the Republican party came into power has established and constantly expanded the home market.
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> As a substitute for the industrial system which under Republican administrations has developed such extraordinary prosperity, our opponents offer a policy which is but a series of experiments upon our system of revenue—a policy whose end must be harm to our

manufactures and greater harm to our labor. Experiment in the industrial and financial system is the country's greatest dread, as stability is its greatest boon. Even the uncertainty resulting from the recent tariff agitation in Congress has hurtfully affected the business of the entire country.

Any effort to unite the Southern States upon issues that grow out of the memories of the war will summon the Northern States to combine in the assertion of that nationality which was their inspiration in the civil struggle. And thus great energies which should be united in a common industrial development will be wasted in hurtful strife. The Democratic party shows itself a foe to Southern prosperity by always invoking and urging Southern political consolidation. Such a policy quenches the rising instinct of patriotism in the heart of the Southern youth; it revives and stimulates prejudice; it substitutes the spirit of barbaric vengeance for the love of peace, progress, and harmony.

The growth of the country has continually and necessarily enlarged the civil service, until now it includes a vast body of officers. Rules and methods of appointment which prevailed when the number was smaller have been found insufficient and impracticable, and earnest efforts have been made to separate the great mass of ministerial officers from partisan influence and personal control. Impartiality in the mode of appointment to be based on qualification, and security of tenure to be based on faithful discharge of duty, are the two ends to be accomplished. The public business will be aided by separating the legislative branch of the Government from all control of appointments, and the executive department will be relieved by subjecting appointments to fixed rules, and thus removing them from the caprice of favoritism. But there should be rigid observance of the law which gives in all cases of equal competency the preference to the soldiers who risked their lives in defense of the Union.

The claim of the Mormons that they are divinely authorized to practice polygamy should no more be admitted than the claim of certain heathen tribes, if they should come among us, to continue the rite of human sacrifice. The law does not interfere with what a man believes, it takes cognizance only of what he does. As citizens the Mormons are entitled to the same civil rights as others, and to these they must be confined. Polygamy can never receive national sanction or toleration by the admission of the community that upholds it as a State in the Union. Like others, the Mormons must learn that the liberty of the individual ceases where the rights of society begin.

During the latter half of the canvass, Mr. Blaine addressed large audiences in his own State, and in New Hampshire, Massachusetts, Connecticut, New York, New Jersey, Pennsylvania, Ohio, Michigan, Indiana, Illinois, and Wisconsin. He made public addresses continuously for forty-three days, speaking, it is said, over four hundred times in that period. The speeches were usually from ten to fifteen minutes in length. (For returns of the election, see the articles CLEVELAND, GROVER, and UNITED STATES.) After the result had been determined, he made, at his home in Augusta, a speech in which he arraigned the Democratic party for carrying the election by suppressing the Republican vote in the Southern States, and cited the figures of the returns to show that, on an average, only one half or one third as many votes had been cast for each presidential elector or member of Congress elected in the South as for each elected in the North. This speech had a startling effect, and attracted universal attention, though Mr. Blaine had set forth the same thing in a speech in Congress as long before as Dec. 11, 1878, when he said:

> The issue raised before the country is not one of mere sentiment for the rights of the negro; though far distant be the day when the rights of any American citizen, however black or however poor, shall form the mere dust of the balance in any controversy! . . . The issue has taken a far wider range, one of portentous magnitude; and that is, whether the white voter of the North shall be equal to the white voter of the South in shaping the policy and fixing the destiny of this country; or whether, to put it still more boldly, the white man who fought in the ranks of the Union army shall have as weighty and influential a vote in the government of the republic as the white man who fought in the ranks of the rebel army. . . . In Iowa and Wisconsin it takes 132,000 white population to send a Representative to Congress; but in South Carolina, Mississippi, and Louisiana, every 60,000 white people send a Representative.

In 1884 Mr. Blaine published the first volume of a work entitled "Twenty Years of Congress," and he is understood to be now at work on the second volume. (See portrait in Vol. VI of "Annual Cyclopædia," page 738.)

BOLIVIA, an independent republic of South America. Previous to the war with Chili, Bolivia was divided into nine provinces, and the population was about 2,400,000.*

Ports.—The Chilians, in 1880, by right of conquest, seized the entire Bolivian seaboard, including the port of Cobija, Bolivia's only outlet to the ocean. By the terms of the truce treaty, however, the landlocked republic, in 1884, came into possession of the new port of Antofagasta, between which and the nitrate-fields of Aguas Blancas a line of railway is to be built.

Government, Public Offices, etc.—The executive power resides in a President elected for four years. The position of chief magistrate, however, has hitherto been gained rather by force of arms than by the people's voice. The President is assisted in his functions by two Vice-Presidents and four Cabinet ministers appointed by himself. The legislative power is vested in a Senate and a Chamber of Deputies, the members of both being elected by universal suffrage.

The President of the Republic is Gen. Campero, inaugurated in June, 1880; the First Vice-President, Don Mariano Baptista; and the Second Vice-President, Dr. B. Salinas.

The Bolivian Envoy Extraordinary and Minister Plenipotentiary to the United States is Dr. L. Cabrera; the Bolivian Consul-General at New York is Señor M. Obarrio; the Consul at New Orleans, Señor T. P. Macheca; and the Consul at San Francisco, Señor F. Herrera.

The United States Minister resident at Sucre is Hon. Richard Gibbs.

Army.—The army, previous to the outbreak of the war with Chili, was commonly reported as 3,021 strong, including eight generals and 1,013 other officers. The expenditure for this department usually amounted to two thirds of the entire revenue.

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* For particulars relating to area, territorial division, and population, reference may be made to the volumes for 1883 and 1880, in which latter minute details will be found.

Finance.—The financial condition of Bolivia is, as usual, most deplorable, deficits covered by loans being of invariable occurrence each successive year. In the budget for the fiscal year 1880–'81, the revenue and expenditures were estimated at $3,465,790 and $4,799,225 respectively, with a consequent deficit of $1,333,435. President Campero, in his message to Congress in 1883, spoke of the revenue and expenditures as having amounted, for the fiscal year then closed, to $2,527,515 and $3,300,528 respectively; adding that, to provide for the resulting deficit of $773,013, "a loan would have to be negotiated." The Congress of 1884 authorized the Executive to raise a loan of $2,000,000. Toward the end of the year, the 10 per cent. export duty on silver was reduced to 6 per cent. A number of new and very rich silver-mines were discovered during the year. Among recent discoveries at the Lepiez mines, the extraordinary yield of 5,000 ounces to the Spanish ton of ore gave rise to the supposition that the famous "Silver Table" of tradition had been reached.

The national debt of Bolivia, concerning which no returns have for many years issued from official quarters, is set down in British financial publications at $30,000,000, including a home debt of $21,500,000 and a 6 per cent. loan of the nominal capital of £1,700,000 ($8,500,000), negotiated in London in 1872, and issued at the price of 68.

Commerce.—The exports and imports are commonly computed at the respective average values of $6,000,000 and $9,000,000. Official returns there are none. But Bolivia carries on a large trade, unburdened by taxes, through Argentine territory; and Argentine statistics show the Bolivian transit trade for the year 1882 to have amounted as follows: Inward, $12,383,585; outward, $1,802,180. It is probable that the figures first above given may with tolerable accuracy be referred to the traffic through the former Peruvian port of Arica. About two thirds of the exports consist of silver, the remainder comprising Peruvian bark, India-rubber, coca, coffee, with bismuth, copper, tin, and other ores, and cubic niter. The imports are mainly manufactured goods from Europe. The direct trade with the Argentine Republic in 1882 was as follows: Imports, $318,605; exports, $128,688. The following table exhibits the value of the imports of British products and of the Bolivian exports to Great Britain during the period 1878–'82:

YEARS.	Imports from Great Britain.	Exports to Great Britain.
1878	$3,005,185	$366,975
1879	1,580,615	267,385
1880	1,645,855	394,645
1881	1,638,905	536,810
1882	1,894,885	458,015

From Antofagasta were exported in April 48,590 cwts. of cubic niter, bringing the total shipments of that commodity, for the first four months of 1884, to 289,978 cwts. The quantity of niter from the Aguas Blancas works was, in 1879, 299,891 cwts.; in 1880, 438,538 cwts.; in 1881, 334,500 cwts.; in 1882, 369,851 cwts.; in 1883, 384,604 cwts. Business between Tacna and Arica and Bolivia was reviving noticeably toward the end of the year.

After achieving considerable success in coffee-growing, the Bolivians are now devoting serious attention to the culture of the cinchona-tree. Until a comparatively recent date, persons engaged in the collection of Peruvian bark did so by wholesale felling of those valuable trees; but now the destroyers have become cultivators. The early results of this new industry were most satisfactory, and in consequence the number of new plantations is multiplying rapidly. Here follows a statement of the number of trees in the most important cinchona districts, according to recent official returns submitted to the Ministry of Finance:

DISTRICTS.	Number of trees.	DISTRICTS.	Number of trees.
Yungas	200,000	Camata	30,000
Songo	70,000	Caupolican	10,000
Mapiri	3,500,000		
Guanay	32,000	Total	3,842,000

If to these figures be added those of the Challana plantations, the total may be set down at 4,000,000 trees, not including the millions of plants contained in nurseries of still more recent establishment. Calculating the average yield of bark per tree at from six to eight pounds, the net profit on each would vary from one dollar to two dollars. And four million trees, ranging at present from five to ten years of age, and at the average value of five dollars each, represent a capital of $20,000,000, which ten or fifteen years hence, when the trees will be in full yield, will be increased to $80,000,000. Again, contrary to the general belief that the cinchona plantations of India and Australia would bring about a depreciation of the market value of quinine, the latter has trebled and even quadrupled within the past forty years. The price per 100 pounds in 1841 was but thirty dollars, and in 1884 it had reached $120. As a proof of the superiority of the Bolivian bark, reference is made, in the report above mentioned, to the following table of comparative analyses by Delondre and Pelletier:

	Yield per 1,000 of sulphate of quinine.
Bolivian bark, from	30 to 32
Curled Calisaya bark, from	15 to 20
Carabaya (thick bark), from	15 to 20
Cuzco (red)	12
Huanuco (Peruvian, without outer bark)	4
Ecuadorian (red), from	20 to 25
Ecuadorian (pink), from	15 to 18
Bogotá Calisaya	30
Pitayo cinchona, from Popayan, from	20 to 25

The East Indian and Australian barks are represented as inferior in quality to those of Ecuador. According to Dr. Francisco Salmon's analysis, the Challana bark, the best from the department of La Paz, yields forty-eight ounces of sulphate of quinine to the quintal (100 lbs.).

Railways.—In addition to the line between La Paz and Lake Titicaca, a new line is to be constructed between Antofagasta and the nitrate-works of Aguas Blancas, and work on another broad-gauge line between Tacna and La Paz was to be begun in the course of 1885, by Messrs. Campbell, Jones & Co., owners of the line from Arica to Tacna.

Telegraphs.—Besides the line from La Paz to the port of Chililaya, on Lake Titicaca, a new line from Potosí to Oruro, through the Colquechaca mining district, has been projected.

BOTANY. The year 1884 closes an important decade in the science of botany in America. As measured by work published, of a high order of excellence, this decade will be found to compare favorably with any preceding it, and, so far as America is concerned, it undoubtedly ranks above any other in the history of this science. As measured by new or improved methods, and extended means of instruction and investigation, it truly begins an era in this country; while in Europe there has been a steady progress and development, in this respect, in lines marked out before 1870. For the change in the mode of instruction, there were certain direct causes, notably the translation into English of certain German works. But these works are themselves linked in with a history which it is important to trace.

Influence of the Microscope.—Before the compound microscope was brought to comparative perfection, the work of describing and classifying plants from characters apparent to the eye, aided by the simple microscope, engaged the attention of botanists. The compound microscope was the means of improving work of this kind, and of opening a new field. The attention given to the development of that instrument in Italy, in Paris, and in London, between 1820 and 1830, resulted in the combination of systems of lenses on sound principles, and also in their correction for spherical and chromatic aberration, so that in 1837, in London, one-eighth-inch objectives were constructed which are scarcely excelled by those of to-day. In 1823 Prof. Amici, one of the first to attempt the perfecting of the microscope, discovered the tubes of the germinating pollen-grain, and demonstrated the essential features of fertilization in higher plants, while the subject was more fully elucidated in 1827 by Adolphe Brongniart. In twenty years from 1823, the date of Amici's discovery, a series of brilliant papers had appeared on the structure of cells, on the anatomy, physiology, and embryology of plants, by Mohl, Schleiden, Schwann, and Robert Brown; and on the life and development of the lower cryptogamia, by the Tulasne brothers and others—all of which are classic memoirs, and lie at the foundation of all subsequent work in their departments. In addition to these, in 1851, was published Hofmeister's "Vergleichende Untersuchungen," afterward translated and brought out by the Ray Society, of London, in 1862, under the title "On the Germination, Development, and Fructification of the Higher Cryptogamia, and the Fructification of the Coniferæ." This work takes up typical forms of liverworts, mosses, ferns, equisetums, selaginellas, and conifers, tracing the life-history of each, and recording the result by means of simple, clear descriptions, and many exquisitely drawn and engraved plates, as faithful in the story they tell as the plants themselves. But what gave unity to this admirable statement of facts was the discovery and absolute demonstration of the existence of two generations, essentially different in form and function, in the life-history of each of these plants. One generation bears the sexual organs, the other the asexual organs, of reproduction. Even the coniferæ are linked with the higher cryptogamia through the history of their embryological life, forming clearly the crowning group of the series. Prof. Sachs says, "This discovery is one of the most fertile in results that has ever been made in the domain of morphology and classification." A new class of facts, we see, are brought to bear on the subjects last mentioned, inaccessible except through the microscope, which opened a new and almost boundless field in this as well as in other directions. Even in the description of the species of flowering plants a revolution was being slowly brought about. Previous to 1840, Decaisne, an eminent French botanist, had introduced the method of including in such descriptions, not only the external characters, but also the internal structure, such as is shown by microscopical study. This practice has been adopted by several systematic botanists since that time in drawing up the characters of the species of certain orders, as the equisetaceæ, gramineæ, and cyperaceæ, and the soundness of the principle will commend itself more and more, and botanists will take the broad ground of describing a flowering plant by means of its structure and life-history as well as its form, as they have already done in describing the lower plants.

Modern Instruction. — All this fundamental work on the structure and life of plants had been accompanied by almost equal activity in systematic botany proper, where former views as to the affinities of groups were greatly altered by the quantities of new material derived from the new fields opened by geographic or botanic exploration. The seed sown fell upon well-tilled and fertile soil. An old, well-settled country, long at peace, with organized systems of education culminating in universities, encouraging original work, and possessing in herbariums and libraries constantly increasing resources, was ready to receive it. Moreover, the sowers of the seed, men of singular acumen, enthusiasm, and self-devotion, and in the full maturity of their powers, were present to direct and stimulate the new growth, and the older of them—Mohl, Thuret, Hofmeister, Braun, Brongniart, Schleiden, Schwann, Decaisne, Bentham, and Darwin—have but recently passed away. The center of activity in this new field of botany, even from its beginning, has been Germany, although France and England, in fewer instances, have produced some of the most widely known names. The quality of German laboratories, methods, and teachers has steadily improved, even to the present time, until a scientific atmosphere has been created, in which the bearing and value of the new work constantly being brought out are at once recognized, and are discussed by means of the numerous botanical publications of that country. In physiological botany, the most difficult field, and the one today presenting the greater number of unsolved problems, the Germans are far in advance of other nations in the equipment of their laboratories and in the results of their investigations. With delicate instruments, in some cases constructed for a particular series of experiments, they bring to their aid physical and chemical investigations, and the spectroscope and polarizing apparatus are important adjuncts in modern work. Although it may be said that the botanical work of Charles Darwin, the most profound and at the same time the most brilliant single performance of the century, should be classed under this head, still the scientific men of all nations admit that for biological and physiological work their students must turn to Germany for their methods, their inspiration, and, for some time to come, their most valuable results.

In the United States, during the first century of national existence, which was devoted to pioneer work and the accumulation of wealth, and near its close to the prosecution of a tremendous civil war, the cultivation of this new field, little known and difficult of access, was almost entirely neglected. The work in systematic botany, especially during the last quarter of that century, was considerable and always of a high character, being performed by a few very able men, as Gray, Torrey, Engelmann, Watson, Sullivant, Tuckerman, and Harvey. But the scope of school and college instruction, whereinstruction in botany could be had, was wholly controlled by the above-mentioned fact, as the text-books were written and the instruction given by men who were specialists in, or mere students of, systematic botany. The work done by pupils was, therefore, from one point of view, dealing mainly with the external characters of the higher plants.

In 1868 was published the first German edition of Sachs's "Lehrbuch der Botanik." Its author was one of the leading physiologists of Germany, a professor at the University of Würzburg, and he brought together in his text-book, in a masterly manner, the scattered results in anatomy, physiology, and morphology of plants, of forty years of investigation by the acute intellects of Germany, France, and England. This first successful attempt at an orderly arrangement of a treasury of rich but unclassified material was greeted with expressions of great satisfaction. In 1875 an English translation of this work was made by A. W. Bennett. It was an imperial octavo of 860 pages, and was after the third German edition (that of 1873), as was the French translation by Van Tieghem. But a fourth German edition had been published in 1874, and Mr. S. H. Vines has made a translation of this, which was published in 1882, with annotations and additions to bring it down to date. The first English edition of Sachs opened to the whole class of younger English-speaking botanists an unfamiliar field, attractive from the admirable work already done, stimulating in the unexplored regions presented, and it came at a favorable moment. The national Government had at last turned its attention to national education, or to one feature of it, by establishing in the several States, through public-land grants, colleges where agriculture and other sciences should be taught. This caused an increased demand about 1870 for instruction in botany and kindred sciences. At about the same time with the publication of the English edition of Sachs's Text-Book of Botany, Harvard University, which has always fostered the science with a more liberal spirit than any other institution in America, expanded a department, already made eminent by the presence of Dr. Asa Gray, by the appointment of several assistant professors: In Physiology and Morphology, Prof. G. S. Goodale; in Cryptogamic Botany, Prof. W. G. Farlow, who was fresh from studies with two of the leading investigators of Europe, De Bary and Thuret; in Arboriculture, Prof. C. S. Sargent. All of these gentlemen have since been made full professors, and to-day stand at the head of their special departments in America. Mr. Sereno Watson, an eminent systematic botanist, has the appointment of Curator of the Harvard University Herbarium, and besides Dr. Gray and the above-named, there are several assistants in botanical work. This generous treatment of the science by Harvard attracted as pupils the younger American botanists and teachers who were seeking improved methods of instruction, especially in the newer fields. Here, with excellent collections, a comparatively rich library, skilled instructors, and original investigators, something like the university instruction of Europe was first offered to American students. The influence of Harvard and its professors on the development of botany in America has been very great, and is proved not only by the large amount of original work done there, but in the less evident but enduring effect of practical laboratory training and the stimulus of example.

Another work published in 1874 has had a considerable share in shaping instruction in the new field of plant biology, and has been used especially as a practical model by many teachers. This is Huxley and Martin's "Elementary Biology." One result of the publication of Sachs in English has been to multiply elementary text-books modeled after it, to suit the needs of beginners. The first to appear was "A Text-Book of Structural and Physiological Botany," by O. W. Thomé, translated and edited by Prof. Bennett in 1877. In 1880 appeared a "Botany for High Schools and Colleges," by C. E. Bessey; and in the same year an "Elementary Text-Book of Botany," by K. Prantl, translated by S. H. Vines. A still more elementary work on the same plan is "The Essentials of Botany," by C. E. Bessey (1884).

In plant physiology proper, which involves special and costly apparatus, for the purpose of original work, and also special training on the part of the experimenter, very little has been done in America, and there are only one or two universities where there is sufficiently good apparatus for repeating the more complex of the modern experiments.

Professorships.—There are professorships of botany alone at Harvard, Brown, Yale, Amherst, Cornell, the University of Pennsylvania, Ohio State University, the University of Michigan, Michigan Agricultural College, the University of Wisconsin, Iowa Agricultural College, the University of Nebraska, and at a few smaller institutions. Four fifths of these have been created within fifteen years, and more than half in the past ten years. In some of the Western institutions horticulture is added to the botanical chairs; but botany is taught much more generally and efficiently than ten years since in many schools and colleges where it is included in the chair of Natural History, and where there is often excellent botanical instruction. In all the above-mentioned colleges, advanced courses are laid out, and in most an opportunity is given for biological study with the microscope and other appliances in the laboratory. It may be said, in passing, that the prices of microscopes have been greatly reduced within the past ten years, They are now nearly as cheap, and the stands as convenient, as European instruments.

Formerly, the general opinion prevailed in this country that "analysis" of species was the sum and substance of all laboratory work. At present, in all the better laboratories, this is made subordinate to other and better methods. The careful study of typical forms of the flowering plants, and field-work, including the collecting and preservation of specimens, are generally encouraged, however. The principal canons, in the present code of biological laboratory instruction, may be put in words as follow: 1. Carefully observe and study typical forms. 2. Assist the observation by drawing and describing the objects studied. 3. Compare different forms studied with one another.

Publications: Plant Anatomy and Physiology.—In considering the published work—especially of the past ten or fifteen years—that in the field of plant anatomy and physiology is the most remarkable in respect to the additions made to our knowledge. De Bary's treatise on the "Comparative Anatomy of the Vegetative Organs of Phanerogams and Ferns," issued in German in 1877, and in English in 1884, is by far the fullest and ablest treatise of recent years. It is a discussion and classification of the so-called elementary tissues, and the tissue systems formed by them. The author gives a considerable number of illustrations of the different types of structure of the meristem of roots and stems, a subject not fully developed till recently. It will serve as a complete hand-book in vegetable anatomy for some years to come. Since 1880 considerable has been written, mostly in German, on the structure of the protoplasm in a growing cell, and the kindred question of the formation of the cell-wall, its structure, and its increase in surface and thickness; indeed, it involved the whole question of the theoretic structure of organized particles in plants, such as protoplasm, starch-grains, chlorophyll-bodies, and the cell-wall. The recent work on the cell-wall and protoplasm was begun by Schmitz in 1880; on the structure and growth of starch-grains, by A. F. W. Schimper in 1881, and in 1882 Strasburger published an important paper on the "Structure and Growth of the Cell-Wall," adopting and supporting the views of the two botanists just mentioned, that the structure and growth of all parts of living cells were best explained by supposing chemically united atoms to form minute particles, or "micellæ," which become aggregated by so-called "apposition" to form the various organized structures, such as the cell-wall and various contents. Any increase in thickness of a cell-wall was asserted to take place by the addition of these micellæ in thin layers, one layer inside another. Starch-grains, which usually show that they are made up of concentric shells, are believed to increase in a similar manner; that is, by apposition of layers of particles over the layers already formed. This theory is directly opposite to the one elaborated by Nägeli to account for the structure of similar bodies; for he supposes starch-grains to increase by the intercalation of new molecules between the old ones, which are theoretically held apart by water surrounding them; also that the outer layer of the starch-grain is the oldest part, and the center of the grain the youngest; the formation of new layers taking place from without inward, on the theory of the intercalation of particles. This theory is the one advanced by Sachs in his "Text-Book." The subject needs further elucidation, but the weight of evidence seems to be in favor of Strasburger and Schimper.

Another investigation, chiefly of recent date, is upon the continuity of protoplasm through the walls of cells in living tissue, by means of minute openings or pits in the walls. The first of the recent work on this was done about

1880 by Tangl and Frommann; in 1882 and 1883 Russow and W. Gardiner gave additional facts; and it now amounts to a demonstration.

It is believed that this connection exists in many parts of the plant, as it has been found to exist between the cells of the bast, cells in young embryos, in young fibro-vascular bundles, and in cells at the base of the leaves of many leguminous plants, particularly those plants with either sensitive or nyctitropous leaves. As such pitted cells occur in great abundance at this point, it is thought that the sudden movement of the leaves of the sensitive-plants, when disturbed, may be due to the readiness with which the sudden shock is communicated through the connecting protoplasmic filaments to every cell at the base of the leaf-stalk, thereby causing a sufficient contraction in all the cells and the contained protoplasm, to draw the leaf downward.

In the domain of physiology proper, Pringsheim's experiments on the office of the chlorophyll-pigment in its relation to the processes of assimilation, created considerable interest from 1878 to 1881. He had a microscope and other appliances constructed purposely for the experiments, and came to the conclusion that the chlorophyll-pigment acted merely as a screen to protect from too strong light the protoplasm of the chlorophyll-body, which in reality performed the act of assimilation. This discovery was generally accepted until in 1883 T. W. Engelmann claimed that assimilation would not take place in any cell or protoplasm where the chlorophyll was absent, no matter how favorably modified the light might be. It is therefore still one of the unsolved problems.

The production of starch-grains from chlorophyll-bodies has been known for some time, but Schimper made the important discovery in 1881 that all starch-grains, so far as examined, in parts not exposed to the light, as tubers, etc., arose from granules similar in form to chlorophyll-bodies, but destitute of chlorophyll-green, so that, instead of arising spontaneously in the cell, they arise always from either green or colorless corpuscles of protoplasm.

This period will always be remarkable for the appearance of a conspicuous group of Charles Darwin's works, and "Darwiniana," by other authors. Between 1875 and 1881 he published "Insectivorous Plants"; the revised edition of "Movements of Climbing Plants"; "The Effects of Cross- and Self-Fertilization"; "Different Forms of Flowers on Plants of the Same Species"; and "The Power of Movement in Plants." It is needless to say that in the field indicated by the above titles, and in general acuteness of observation and generalization, he was without a rival. The rapid appearance of these works occasioned discussion and stimulated work everywhere. In 1873 Hermann Müller's "Fertilization of Flowers by Insects" appeared in German, and in 1883 in English. It is a rich store-house of observations in this peculiar field, and invaluable to the student of these phenomena. In the death of Darwin in 1882, and of Müller in 1883, ends a period of this peculiar literature which Darwin opened in 1862 by the publication of "Various Contrivances by which Orchids are Fertilized by Insects." In no other part of plant-physiology has America contributed any original work recently, but Prof. Trelease has published a series of excellent studies on fertilization by the aid of insects, which deserve mention.

Thallophytes: (1) **Bacteria.**—No department of botanical literature has received greater accessions in ten years than that relating to bacteria. Though these are written largely from the stand-point of pathology, nearly all the valuable papers are of interest to botanists. The first volume of Cohn's "Beiträge" was published in 1872; the second and third in 1876–'79. Interest in these organisms has increased from 1872 to the present time, and papers by eminent plant-physiologists have appeared in rapid succession. Robert Koch, Nägeli, Buchner, Kühn, and many others, have published results of experiments, some of them showing wonderful patience, care, and skill. The recent work of Koch has attracted the attention of the world; for he claims to have demonstrated that malignant anthrax, tuberculosis, and cholera are each caused by a different species of *Bacillus* (see TUBERCLE BACILLUS, in "Annual Cyclopædia" for 1883). That of cholera is comma-shaped, those of anthrax and consumption rod-like, but perfectly distinct from each other, and from other forms. He has explained his laborious, careful methods of experiment, and his mode of getting pure cultures, so as to inoculate healthy subjects with undoubted specimens of the particular *Bacillus*. It is sufficient to say that he has convinced many medical and botanical experts of the soundness of his conclusions. But he has also met with violent criticism, although nearly all the experiments, opposed or negative in their results, performed by his critics, are far below his own in thoroughness and completeness. He denies that tuberculosis is hereditary, but says it should be classed as a contagious disease; and that, knowing the *Bacillus* producing this disease and cholera, and the conditions promoting their development, it will be possible to adopt effective means to prevent the spread of such diseases.

Although it is asserted frequently that the organisms accompanying various other malignant diseases are the cause of such diseases, there is no proof in favor of this assertion anywhere nearly as adequate as that afforded by Koch in respect to the three mentioned. The botanical aspect of these investigations is chiefly confined to the question, Are these forms of bacteria, asserted to be peculiar to certain diseases, or pathogenic conditions, really distinct species of organisms, or are they only modifications of a few forms, occasioned by the environment that each disease affords? Koch, with the members of the so-called Berlin school of workers, favors the first view, while the Munich school take the view of Nägeli, Pasteur, and others, that the latter statement is the correct one. In America deep interest is taken in the whole subject, and some original work has been attempted. Prof. Burrill claims to have demonstrated that the "pear-blight" is caused by bacteria. His views are published in "Bulletins of the Illinois State Laboratory." In 1880 Dr. G. M. Sternberg published a translation of Magnin's "Bacteria," the best recent summary of the group. The work includes an ample bibliography. In 1883 a second edition was issued, with many of Dr. Sternberg's own experiments on yellow fever and other diseases, while serving with the United States National Board of Health.

(2) **Algæ.**—In the Thallophytes above bacteria there have been several important publications in Europe, increasing considerably our resources. J. G. Agardh's "Species, Genera, et Ordines Algarum," in three volumes (1876), purports to be a complete manual of the marine flora of the world. In 1876 "Notes Algologiques," and in 1878 "Études Phycologiques" were published; two magnificently illustrated folio volumes by two eminent authors, Bornet and Thuret. The latter volume surpasses anything ever written on algæ, in the excellence of both plates and text.

In America, the "Marine Algæ of New England and the Adjacent Coast," by W. G. Farlow, was published in 1881. It contains over 200 pages, and has 15 excellent plates. It describes 230 species, some being new, and is a thoroughly trustworthy manual for the region.

(3) **Fungi.**—Dr. Farlow's papers on fungi, appearing at intervals since 1875, and Dr. Peck's reports on fungi and other plants, in the New York State "Reports on Natural History," have included most of the original work in this field in America. These have often had an economic bearing, the life-history of several fungi that occasion diseases of cultivated plants being worked out for the first time. Dr. Farlow's "Gymnosporangia of the United States," and his "Enumeration of the Peronosporeæ of the United States," are important papers published in 1880 and 1883. Systematic collection and preservation of specimens always marks a genuine awakening of interest in a subject. The "Algæ Americæ Borealis Exsiccatæ," begun in 1877 by Farlow, Anderson, and Eaton; a collection of "North American Fungi" by Ellis, and another by Ravenel and Cooke, both begun in 1879, are sets of dried plants mounted, correctly named, and put up in book-form for subscribers. The "Fungi" have been issued in parts of one hundred or more. The Ellis collection has reached an aggregate of 1,300 species.

In Europe the most important work on fungi has been the investigation and clearing-up of the life-history of certain little-known forms. De Bary and Woronin's "Contributions to the Morphology and Physiology of Fungi," and Brefeld's "Investigations of Moulds," are two series of papers published at intervals, down to the present date, and are admirable illustrations of this class of work. Many similar papers of value have appeared in France and Germany, while in England, with the exception of Mr. Plowright's work on "Heterœcism of the Uredineæ," the work has had more of a systematic character.

(4) **Lichens.**—The veteran lichenologist of North America, Prof. Tuckerman, issued his "Genera Lichenum" in 1872, and in 1882 "A Synopsis of the North American Lichens—Part I," containing descriptions of the species of three families of lichens. Each work contains between 250 and 300 pages, and the name of the author insures their high value. Recent additions to the lichenology of Europe have been voluminous indeed, but mostly poured into that vexed and turbid pool, the "Schwendenerian Theory," of the algoid-fungal nature of lichens. There seems to be no prospect of any immediate settlement of the question.

Work has been done on the Characeæ by B. D. Halstead in describing all known American forms in 1879, while in the same year appeared two parts of the "Characeæ of America," a quarto work with excellent illustrations, by Dr. T. F. Allen.

Spontaneous Generation.—The theory of spontaneous generation was revived by the writings of Bastian from 1872 to 1877, but has received thorough refutation from Prof. Tyndall's work on "Floating Matter in the Air," and other essays, as Pasteur had refuted it nearly a generation before. A quotation from the latter sums up comprehensively the truth in regard to this whole question: "Man has it in his power to cause parasitic diseases to disappear off the surface of the globe, if, as we firmly believe, the doctrine of spontaneous generation is a chimera."

Higher Cryptogamia: (1) Mosses and Liverworts.—In considering the higher cryptogamia (liverworts, mosses, ferns, etc.), and the phanerogamia or flowering plants, the past decade will occupy a high place in the history of systematic botany in America. During the past year (1884) a manual of the "Hepaticæ (or Liverworts) of the United States" has been published by L. M. Underwood, bringing together the scattered literature on that subject and furnishing a basis for future work. "A Manual of the Mosses of North America," by James and Lesquereux, was also published in 1884. It has been long expected, and takes a place long vacant by the disappearance from print of Sullivant's "Mosses," published 1856. It is invaluable, as it brings together the results of the life-long labors of Sullivant, Austin, and the editors, all of them accomplished bryologists, and may be considered as closing the first era of American bryology. Future work will have to be done by another generation.

Sullivant's last and crowning work, the "Supplement to the Icones Muscorum," appeared in 1874, his death having occurred in 1873.

(2) **Ferns.**—Considerable interest was manifested in ferns in 1875–'76, and in 1877 was begun the "Ferns of North America," by Prof. Eaton, of Yale College. It was completed in 1880, in two sumptuous quarto volumes, of over five hundred pages of text, describing all ferns known north of Mexico, and eighty-one colored plates, each of the one hundred and fifty or more species being represented. The work of G. E. Davenport on "Botrychium Simplex," and on other ferns, and that of John Williamson on the "Ferns of Kentucky" and "Fern Etchings," are highly creditable. A little manual of "Ferns and their Allies," by Prof. Underwood, is very useful, and contains a full bibliography of the work on American ferns and allied forms. All the works above mentioned appeared between 1877 and 1882.

Phanerogamia.—The period since 1870 has been particularly fruitful in the publication of works on the flowering plants of North America. This is due in part to the untiring energy of Dr. Asa Gray and his coadjutors, and in part to the patronage of the United States Government, through the several geographical and geological surveys of the Territories. In 1871 appeared the "Botany of the United States Geological Exploration of the Fortieth Parallel," under Clarence King. It was vol. v of the reports, a large quarto, enumerating 1,285 species, and illustrated with forty plates. The work was written by Sereno Watson, assisted by Engelmann, Gray, Eaton, and others, and included the plants of northern Utah and Nevada. There were descriptions of new species, and indeed of all species found, not described in Gray's "Manual of Botany for the Eastern United States." This plan was followed in all subsequent reports on botany of a similar character made in connection with the United States surveys. In 1874 appeared in octavo form a "Synopsis of the Flora of Colorado," by Porter and Coulter, a part of the Hayden survey. In 1878 was published "Botany," vol. vi of the United States survey under Wheeler. It was by Prof. Rothrock, assisted by Watson, Eaton, and other eminent specialists, and included the territory of southern Utah and Nevada, and portions of California, New Mexico, and Arizona; 1,657 species were enumerated, with 30 plates, 27 of the latter being of new species. In addition to these were published two large quarto volumes on the "Cretaceous and Tertiary Fossil Flora of the Territories," a part of the Hayden survey, and appearing in 1874 and 1878.

In 1876 appeared vol. i, and in 1880 vol. ii of the "Botany of California," the most elaborate and complete State flora yet published. Indeed, with the exception of "The Flora of New York," no others can compare with it. It is a quarto, of over 1,100 pages, including the flowering plants, ferns, and mosses of California, and often of Oregon. The first volume was by Brewer, Watson, and Gray, the second by Watson alone. This work was begun under the patronage of the State Geological Survey of California, but the State having abandoned it, it was finally printed by the private subscription of the following-named gentlemen: Leland Stanford, D. O. Mills, J. C. Flood, L. Tevis, Charles McLaughlin, R. B. Woodward, W. Norris, John O. Earl, Henry Pierce, Oliver Eldridge, S. C. Hastings, and Charles Crocker. The foregoing account of this prolific period proves that government or private patronage is absolutely necessary to the development of the best scientific work. During this period had appeared, as No. 258 of the Smithsonian Miscellaneous Collections, Sereno Watson's "Bibliographical Index of North American Botany," vol. i being a revised synonymy of the Polypetalæ, and a work of nearly five hundred pages. The other volume will appear by the time that Dr. Asa Gray's "Flora of North America" is completed. The latter work, begun in 1838 and 1840 by the publication of two volumes by Torrey and Gray, was abandoned on account of the vast regions of North America then unexplored, from which collections, rich in new species, were coming in at intervals. Over the great quantity of material that has continued to pour into the Harvard University herbarium for forty years, Dr. Gray has labored, besides publishing text-books, writing reviews, and conducting class-work. Papers on the plants of the great plains and the Rocky Mountains have appeared in almost every volume of the "Proceedings of the American Academy" since 1850, and his hand was seen in the "Botany of the Pacific Railroad Survey." Finally, in 1878, appeared one part, of nearly 400 pages, of the "Synoptical Flora of North America." In 1884 appeared a similar part. These two parts describe all the Gamopetalæ north of Mexico. We may expect the three remaining parts to appear within a few years, making altogether two volumes of about 1,200 pages each, and including descriptions of all North American plants, from the Ranunculaceæ to the vascular Cryptogamia, inclusive. Besides the publications mentioned, Dr. Gray has found time to plan a new series of text-books in botany, and to bring out vol. i in 1879. It is entitled "Structural Botany," contains 440 pages, and is an extension, and practically a sixth edition of a previous work so named. Vol. ii, on "Physiological Botany," will be brought out by Prof. Goodale; vol. iii, "Cryptogamic Botany," by Prof. Farlow; vol. iv, "Systematic and Economic Botany," by Dr. Gray himself. These three volumes are yet unpublished.

Of other important American works, we might mention the appearance of Prof. McCloskie's "Elementary Botany" in 1883, and also, in the same year, Prof. Kellermann's "Elements of Botany," two text-books suggesting in their plan Dr. Gray's rather than Sachs's as their model. Chapman's "Flora of the Southern United States east of the Mississippi River" was republished in 1883, with additions up to date, leaving no considerable portion of the United States, excepting Texas and Louisiana, and the Montana and Wyoming regions, without a special flora.

In other lands this era will be distinguished by the completion of several great works, particularly the "Flora of Australia," by F. von Müller, finished in ten volumes about 1877; the "Flora Orientalis," by E. Boissier, covering the Orient from Greece and Egypt to India, and finished in five volumes in 1884.

The great modern work on systematic botany, Bentham and Hooker's "Genera Plantarum," in three large volumes, was begun in 1852 and finished in 1883. This will serve as a guide in this work for the next thirty or forty years probably. Some of the great floras, like the "Flora Brasiliensis," the "Flora of British India," the botanical part of the "Biologia Americana Centralis" (Flora of Central America), can only report progress.

Fossil Botany.—In botanical geography and the distribution of species, the most important works of recent issue are those in fossil botany. Lesquereux's volumes on the "Cretaceous and Tertiary Floras of the Territories" have been supplemented by Heer's magnificent work, "Flóra Fossilis Arctica," in seven volumes, the last published in 1883, just before the author's death. This work has abundantly confirmed Dr. Gray's opinion, formed in 1856, before any except the merest fragments of these discoveries were known, that a mild climate reigned in the latitude of Behring Strait in the Tertiary, allowing the intermingling of North American and Asiatic types of plants, and that subsequent glaciation drove these types southward, and those suited to the similar climates of eastern Asia and eastern North America survived, thus exhibiting in two widely separated regions remarkably similar floras, the species being not infrequently identical. Heer's latest volume records a fossil palm in Greenland, and concludes that the mean annual temperature for that latitude in the Tertiary Miocene was between 10° and 11° centigrade. The present flora of North America had its origin not later than the middle of the Cretaceous, where, as well as more abundantly in the Tertiary, are found many fossil species, either identical with living, or near enough to be their immediate ancestors.

Miscellaneous.—Several works of a general character, but of the highest value, have appeared in French. One, translated into English in 1873, was Le Maout and Decaisne's "Descriptive and Analytic Botany," a general review of all orders of plants, and copiously illustrated; another, in 1880, by Alphonse de Candolle, "La Phytographie," gives a philosophical review of the art of describing and studying plants; another, in 1883, by the same author, on "L'Origine des Plantes Cultivées," gives the results of life-long attention to this subject. Every year brings out important works. The publication of Strasburger's "Botanische Practicum," within a few months, and the announcement of a new work by De Bary, "Comparative Morphology and Biology of Fungi, Myxomycetes, and Bacteria," are only a few instances. A "Journal of Mycology" (Fungi) will be started in America in 1885. Similar journals have existed in England, Germany, France, and Italy, for some years.

BRAZIL, an empire of South America, the only monarchy in the Western Hemisphere.

Boundary Questions.—The only questions of limits now pending between the Brazilian empire and other countries are those with Colombia, France, and the Argentine Republic. Numerous attempts have been made to effect a settlement of the first by diplomatic means. The last, involving the persistent claim of Brazil to the Misiones Territory, has of late given rise to apprehensions of an ultimate appeal to arms. "The Argentine Government is continually receiving supplies of arms of modern invention," writes a Rio journalist. "Is it merely for ostentation that the republic is making such considerable outlay? Her obstinate persistence in the question of limits must of necessity add to the delay consequent upon the action of the commission appointed for the study of boundaries. Should we not look forward to the natural consequences of a demand so contrary to justice and right? Let us not deceive ourselves; our situation is neither entirely advantageous nor exempt from danger. Our first and most important need, in case of war, is the horse—the Argentine Republic is our market—and our cavalry is at present dismounted." The old boundary question with France, relating to the undefined dividing-line between French Guiana and Brazil, has now assumed a new phase, the French Government having sent out (in 1884) a scientific exploring expedition for the purpose of studying the natural condition and capabilities of the great Amazonas region, with a view to the extension of commerce between the two countries, and not territorial conquest.

Area, Territorial Divisions, Population, etc.—With an area of over 3,200,000 square miles (nearly two fifths of the total area of the Southern Continent), Brazil is divided into twenty provinces and one neutral municipality, which, with their respective populations (as estimated at the end of 1883), are as follow: *

PROVINCES.	Population.
Alagôas	397,379
Amazonas	80,942
Bahia	1,655,408
Ceará	722,000
Espirito Santo	100,717
Goyaz	191,711
Maranhão	430,059
Matto-Grosso	72,051

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* Elaborate statements concerning area, territorial divisions, population, etc., may be found in the volumes for 1873 and 1878.

PROVINCES.	Population.
Minas-Geraes	2,449,010
Pará	843,511
Parahyba	482,817
Paraná	189,668
Pernambuco	1,014,700
Piauhy	239,691
Rio de Janeiro	988,831
Rio Grande do Norte	269,051
Rio Grande do Sul	568,703
Santa Catharina	201,048
São Paulo	1,058,950
Sergipe	211,178
Neutral municipality	485,568
Total	12,002,978

In regard to sex, the ratio was about 5·80 females to 6·20 males. With respect to race, the proportions were approximately as follow: Caucasians, 37·89 per cent.; Africans, 19·54; indigenous, 3·86; hybrids (mestizos, cafuzos, etc.), 38·71.

As to nationality and religion, about 85 per cent. of the total number of inhabitants were Brazilians (of all races) by birth, and 99 per cent. Roman Catholics.

Of the whites of foreign birth, the Portuguese (about 140,000) were by far the most numerous.

Immigration.—Although Brazil, while making strenuous efforts to attract European immigrants to her shores, has hitherto done but little to induce them to stay, the inflowing tide rolls on from year to year in constantly growing proportions. The number of arrivals was 9,123 in 1870; 12,331 in 1871; 18,441 in 1872; 14,931 in 1873; 29,029 in 1877; 22,423 in 1878; 22,859 in 1880; 25,845 in 1882; and 26,789 in 1883. Of these last, 11,226 were Portuguese, 10,698 Italians, 2,348 Spaniards, 1,690 Germans, 249 Austrians, 158 English, 152 French, 94 Swiss; and 119 of other nationalities. Free passages are no longer given to immigrants; but these on arriving may have board and lodging for eight days at Government expense, and then be forwarded free of charge to such of the colonies as they may desire to join. About 13,500 were assisted in this way in 1883. "Unfortunately, the desire is to import farm laborers on three or five year leonine contracts—a species of serfdom; and a colonization company in Rio proposes to engage ignorant Canary-Islanders in thousands at twelve milreis a month with board, for men, and eight milreis with board, for women—say $5.40 and $3.50 respectively—while the ordinary board-wages for boatmen and women is at least 30 milreis a month."

Slavery and Emancipation.—According to official registers, the slave population on September 30, 1873, amounted to 1,541,819, which number, at the end of 1883, had been reduced, by deaths (195,348) and emancipation (134,525) to 1,211,946. Of the 134,525 manumissions, about 18,500 were effected out of the emancipation fund, and the rest were due to private liberality. The final abolition of slavery was announced in Ceará, on March 25, 1883, amid universal rejoicings; the number of slaves then set free was 22,660, of whom 1,805 by the Imperial Government. The province of Amazonas soon followed the example, liberating the whole of its slaves in 1884. The grand abolition movement is daily growing more and more popular, and has come to be the chief concern in all classes of society. The great project, on being presented by the Government, passed its first reading, amid a scene of uproarious clamoring, by a small majority, and was submitted for report to committees. The report of these, and proposed modifications, were to be brought before the House on July 30, 1884, and the ministry had repeatedly declared they would stand or fall by that project alone, declining all challenges and votes of confidence upon any other point. But as the opposition perceived the inexpediency of defeating the Government and facing their constituencies direct upon that issue, a powerful combination was organized with the view of securing a defeat before the presentation of the bill in its modified form, and this was accomplished on the 28th by a majority of seven upon a minor point of votes of supply. This little victory for the opposition, however, led to their ultimate and complete discomfiture, for the Emperor, at the request of the president of the Council, and in the exercise of his prerogative, signed the decree dissolving the Camaras on the night of the 29th. The chief of the Cabinet, on the 31st, proposed to the House that they should continue until the votes of supplies should be all sanctioned, which proposal they meekly accepted. The Camaras virtually dissolved, sitting only to vote supplies, powerless even to make reference to any other question; such was the situation of the would-be victorious opposition, whose absurd obstruction, together with his own keen foresight and skillful manœuvres, strengthened the premier's position beyond all precedent, and assisted him to immortalize his name as the champion of abolition. The result of the ensuing election was looked forward to with lively interest, as the decision, not of a mere contest between Liberals and Conservatives, but of a death-struggle "between slavery and abolition, between labor and capital under the worst aspect of each; between justice and injustice; between right and wrong."

Government.—The Emperor is Dom Pedro II, born December 2, 1825; proclaimed April 7, 1831; regency until July 23, 1840; crowned July 18, 1841; married September 4, 1843, to Theresa Christina Maria, daughter of the late King Francis I of the Two Sicilies.

The Cabinet, of June 6, 1884, was composed of the following ministry: President of the Council and Minister of Finance, Senator Councilor of State M. P. de Souza Dantas; Interior, Senator P. Franco de Sá; Justice, Deputy J. da Matta Machado; War, Deputy C. L. M. de Oliveira; Navy, Senator Admiral J. R. de Lamare; Commerce, Agriculture, and Public Works, Deputy A. Carneiro da Rocha.

The Council of State comprised, besides the

Princess Imperial Donna Izabel, and Prince Gaston of Orleans, Count d'Eu, the following members extraordinary (limited in number to twelve): Senators Viscount de Muritiba, Viscount de Bom Retiro, Admiral Lamare, J. J. Teixeira, M. P. de Souza Dantas, Viscount de Paranaguá, J. L. V. Cansansão de Sinimbú; Deputies Martin Francisco, Ribeiro de Andrade, P. J. Soarez de Souza, J. C. de Andrade Pinto; and Senators Affonso Celso de A. Figueiredo, J. B. da Cunha e Figueiredo, Lafayette Rodriguez Pereira, and L. A. Vieira da Silva.

The President of the Senate, which comprises fifty-eight members elected for life, was Councilor Baron de Cotegipe; and the Vice-President, Count de Baependy.

The President of the Chamber of Deputies, which is composed of one hundred and twenty-two members elected for a term of four years, was Councilor A. M. de Barros; and the Vice-President, M. A. de Araujo.

The presidents of the several provinces were as follow: Alagôas, Dr. H. M. Salles; Amazonas, Dr. J. J. Ferreira; Bahia, Councilor J. R. Chaves; Ceará, Dr. C. H. B. Ottoni; Espirito Santo, Dr. J. J. Affonso Alves; Goyaz, Dr. C. A. M. de Brito; Maranhão, Baron Grajahn; Matto-Grosso, Baron Bacovi; Minas-Geraes, Dr. A. G. Chaves; Pará, Councilor J. Silveira de Souza; Parahyba, Dr. J. A. do Nascimento; Paraná, Dr. A. M. de Oliveira; Pernambuco, Dr. J. M. de Freitas; Piauhy, Dr. E. A. Victorio da Costa; Rio Grande do Norte, Dr. F. P. Salles; Rio de Janeiro, Dr. J. L. de Godoy Vasconcellos; Santa Catharina, Dr. F. L. da Gama Roza; São Paulo, Dr. O. J. Paula de Andrade; São Pedro (or Rio Grande do Sul), Councilor J. J. d'Albuquerque; Sergipe, Dr. F. G. C. Barreto.

Church Dignitaries.—The Rt. Rev. L. A. dos Santos (1880) is Archbishop of Bahia and Primate of all Brazil; and there are eleven bishops: those of Belem, or Pará, São Luiz, Fortaleza, Olinda, Rio de Janeiro, São Paulo, Porto Alegre, Marianna, Diamantina, Goyaz, and Cuyabá.

Diplomatic Corps.—The Brazilian Minister Plenipotentiary and Envoy Extraordinary to the United States is Councilor F. Lopez Netto; and the Consul General of Brazil at New York for the Union is Dr. Salvador Mendonça.

The United States Envoy Extraordinary and Minister Plenipotentiary to Brazil is Hon. T. A. Osborn; and the United States Consul-General at Rio de Janeiro is Mr. C. C. Andrews.

Army.—The actual strength of the army in 1884 was 13,764, including 1,900 officers of all ranks. The war strength was fixed at 30,000. The state of the several armies was as follows: Cavalry, 5 regiments, 2 corps of chasseurs, of 5 companies each, and 1 garrison squadron and 5 companies; infantry, 21 battalions, 8 garrison companies, and 1 depot company for drill; artillery, 8 regiments of horse, and 4 battalions of foot; sappers, 1 battalion.

The gendarme corps comprises 10,792 men, 1,063 of whom are at Rio.

Navy.—The navy, in 1883, consisted of 33 steam-vessels (7 ironclads, 1 frigate, 7 corvettes, 16 gunboats, 2 transports), and 2 sail-of-the-line, with an aggregate of 3,148 men, and a total armament of 123 guns. There was, besides, one school-ship; and, in course of construction, one ironclad and five gunboats.

The *personnel* of the navy consisted of 15 general staff-officers, 378 first-class officers, a sanitary corps of 68 men, 91 accountants, 79 guardians, and 181 engineers; an imperial marine corps, 2,922 strong; a naval battalion of 450 men, and 1,520 apprentices: total, 5,704.

Besides the naval arsenals at Rio de Janeiro, Pará, Pernambuco, and Bahia, there is one in the province of Matto-Grosso.

Education.—The primary branches of public instruction in the capital are controlled by the Imperial Government, and in the provinces by the Provincial Assemblies; and primary education is gratuitous throughout the empire, compulsory in some of the provinces, and to become compulsory in all "as soon as the Government deems it opportune." The primary and secondary schools numbered 5,785 in 1881, with an attendance of 188,843, against 140,000 in 1874. The higher branches of literature, the arts, sciences, law, etc., are taught in numerous colleges and special schools in the capital and other chief cities.

Finances.—The redeeming feature of Brazilian financial policy is punctuality in the payment of interest on the foreign branch of the national debt, and on that circumstance mainly rests the empire's credit in European markets, though that punctuality is attained at the expense of credit at home. The invariable excess of expenditures over receipts, which was greatly enhanced during the Paraguayan war and the disastrous northern famine of 1881, creates deficits, to be covered by the issue of loans at home and abroad, and the imposition of oppressive duties on exports and imports, besides undue taxation of lands, house-rent, trades, the transfer of property, etc.

The foreign debt, according to the report of the Minister of Finance, amounted, in December, 1882, to £15,002,500, which, by the issue of the 1883 loan (£4,599,600), was increased to £19,602,000; or, less the reduction effected in the year last named, to £19,032,000. The internal consolidated debt amounted, on March 31, 1883, to 407,823,000 milreis, including the 4½ per cent. loan of 1879, virtually transferred to Europe. But at that date the Government had also liabilities as follow: deposits of all kinds, 57,133,470 milreis; treasury bills, 46,651,000; paper money, 188,041,080; constituting a total home debt of 699,662,650 milreis, equivalent, at the then current rate of exchange, to £62,-333,000, which, added to the foreign debt above mentioned, makes an aggregate national debt of £81,369,000. In these figures are not included the provincial debts, often so large as to determine serious crises. The following table, prepared from official returns, exhibits the state of Brazil's foreign loans on Nov. 1, 1883:

ISSUED IN	Original amounts.	Balances, Nov. 1, 1883.
1860	£1,373,000	£213,600
1863	3,8 5,300	1,290,300
1865	6,963.600	5,181,900
1871	3,459,600	2,928,700
1875	5,301,200	4,872,400
1883	4,599,600	4,599,600
Totals	£28,119,400	£19,086,500

All these loans were contracted through the Rothschilds of London, and on the security of "all the resources of the empire." The 1883 loan, at 4½ per cent. for £4,000,000, the price of emission being £89 per £100, is to be redeemed by a sinking fund of one per cent. per annum, dating from June 1, 1884. In the case of this, as of the earlier loans, the sinking fund of one per cent. is to be applied by purchase of bonds in the market when the price is under par, and, when at or over par, by drawings by lots.

The national revenue and expenditure for the fiscal year 1881–'82 were 131,986,964 and 139,470,648 milreis, respectively; deficit, 7,483,684 milreis.

The budget estimates for 1883–'84 *imply* a surplus of 1,930,340, and those for 1885–'86 a surplus of 5,104,162 milreis. The Minister of Finance divines the possibility of a saving of 5,000,000 milreis in the ordinary expenditures, and of a further economy of 3,000,000 by converting the six per cent. home debt into a five per cent. debt, leaving only about 75,000,000 to be provided for by taxation, to establish an equilibrium of revenue and expenditure. Part of the necessary increase of revenue may, he thinks, be obtained by putting a tax on cultivated land near railroads and navigable rivers; another on transfers of movables; taxes on tobacco and some other articles; by adjusting and extending the taxes on trades and professions, and by increasing the duties on foreign articles of luxury, while reducing those articles necessary to the poor.

Commerce.—Concerning this department, no more recent returns, of a general character, are at this writing available than those given in the volume for 1883. A significant remark may, however, prove opportune in this place, namely, that in the case of Brazil, as of most of the other countries of Latin America, the balance of trade with the United States is constantly against the last; and accounts have, of course, to be settled mainly "by payments by us, or by exchange through London." The following observations, from the pen of Dr. Salvador Mendonça, the Brazilian consul-general in New York, will be found interesting in this connection: "The balance of trade between this country and Brazil is against the United States. The balance, in favor of Brazil, for the twenty-one years ending 1879, amounted to $443,267,864. During the same period the commerce between England and Brazil gave a balance of $15,104,579 in favor of the former; while France, during the same period, had a balance in her favor of $38,099,800. The British exports to Brazil were of the value of $616,803,716; those of France, $353,263,900; and those of the United States only $132,253,934. Most of the Brazilian foreign trade is with England, and the fault lies with the United States, which might easily monopolize that commerce if her merchants but acted as they ought. All that is required is frequent and rapid steam communication between the two countries. The United States and Brazil Company has good steamers, but they only run every six weeks. Brazilian coffee is brought to New York in British bottoms, and paid for in London, and thereby Brazil purchases in England commodities which, under other circumstances, she would buy in the United States. By acting at once as banker and carrier, England levies a tax of 12½ per cent. on the trade between the United States and Brazil. This being the chief market for Brazilian coffee, Brazilian merchants would willingly take, in exchange for that article, manufactured goods, machinery, and all other products which this country could supply. Another need is direct telegraphic communication between the two nations. The British Cable Company declared last year a dndivide of 14 per cent. on a capital of $8,000,000, and one half of that profit was derived from transactions with the United States. Trinidad is already united by telegraph with this country, and that island is but twenty-four miles distant from the coast of South America. By means of a cable 1,000 miles long, parallel with and close to the coast, the Brazilian system could be linked to the land-wires, and telegraphic communication thus be opened up between Brazil and the United States. That line could be completed and worked by a company having a capital of $1,000,000, and such a company is at this moment being organized."

Brazil claims to possess 800,000,000 coffee-shrubs, covering upward of 2,000,000 acres of land, about 400 shrubs being planted to each acre. The average yield of each shrub is one pound of marketable coffee per annum. The coffee industry of the empire affords employment for 800,000 persons, for the most part slaves.

Shipping.—The shipping movements at the various ports of Brazil, in the year 1883, were as follow:

OCEAN TRADE.

ENTERED.—1,218 craft, with an aggregate of 1,220,832 tons.
CLEARED.—1,067 craft, with an aggregate of 1,207,821 tons.

COASTING TRADE.

ENTERED.—1,414 craft, with an aggregate of 454,789 tons.
CLEARED.—1,588 craft, with an aggregate of 540,891 tons.

Besides the three steamers of the United States and Brazil Mail Steamship Line, under contract with the Imperial Government, others run between New York and Rio Janeiro, *via* St. Thomas, Pará, Pernambuco, and Bahia.

The contract of September 8, 1881, with the *Société Portale Française de l'Atlantique*, for a line of steamships between Rio de Janeiro and Halifax, was rescinded, at the request of the company, on June 9, 1883. In the eight round trips made by the vessels of this line, but 58 passengers had been carried, and 48,119 packages, at an expense of $29,765, while the receipts, exclusive of the Brazilian subsidy, amounted to but $15,570. The following companies receive subsidies: Amazon Steam Navigation Company, limited, with 21 vessels, performing 48 round trips annually, viz., 12 on the Rio Purús, between Manáos and Hyutanahan: aggregate distance, 30,758 miles; 12 on the Rio Madeira, between Manáos and Santo Antonio: aggregate distance, 28,564 miles; 12 on the Rio Negro, between Manáos and Santa Izabel: total, 12,712 miles; and 12 on the Solimeõs (Upper Amazon), between Manáos and Iquitos (Peru): total, 31,948 miles; the *Companhia Brasileira de Navegação por Vapor*, for 36 round trips annually between Rio and Pará, and the principal intermediate ports; the *Companhia Nacional de Navegação por Vapor*, for 58 annual trips between Rio and Montevideo, and Buenos Ayres; the *Companhia Espirito Santo e Caravellas*, for 12 annual trips between these two ports, and as many between the first and São Matheus; the *Companhia de Navegação costeira e fluvial do Maranhão*, for 24 annual trips between São Luiz and Fortaleza, southward, and 12 northward between São Luiz and Vigia; the *Companhia Paulista*, for five monthly trips between Rio and São Francisco; and companies running steamers on the rivers Iguassú and Negro, and the Upper Paraguay.

Railways.—At the end of 1883 there were 5,619 miles of railway in operation, and 2,786 miles in course of construction: total, 8,405 miles. Several of the lines are owned and controlled by the state. Here follows a list of the Government railways:

PROVINCES, ETC.	Lines.	LENGTH IN KILOMETRES.		
		In operation.	In construction.	Totals.
Ceará	Baturité	109	...	109
	Camocim to Sobral	129	...	129
Pernambuco	Extension of the Recife-Palmares line	39	112	151
	Recife to Carnarú	...	111	111
Alagôas	Paulo Affonso	116	...	116
Bahia	Extension of the Bahia-Alagoinhas line	147	184	331
Neutral municipality	Dom Pedro II:			
	Rio Janeiro to Lafayette	462	150	875
	Gamboa branch	1		
	Campinho branch	2		
	Santa Cruz branch	34		
	Macacos branch	5		
	São Paulo branch	157		
	Porto Novo da Cunha branch	64		
	Rio do Ouro	58		58
Rio Grande do Sol	Taquary to Caoequy	180	201	381
Grand totals		1,508	753	2,261

In the subjoined table are enumerated other lines, not the property of the state, but with a percentage of interest guaranteed by the Government on a fixed capital.

PROVINCES.	Lines.	LENGTH IN KILOMETRES.		Capital chiefly in milreis.	Guaranteed percentage of interest.
		In operation.	Total.		
Pernambuco	Recife to Palmares	125	125	14,977,965	7
	Recife to Limoeiro, and branch to Nazareth	96	96	5,000,000	7
Sergipe	Aracajá to Simão Dias	...	...	Not fixed	..
Bahia	Bahia to Alagoinhas	124	124	16,000,000	7
	Branch from Alagoinhas to Timbó	...	83	2,650,000	6
	Central	225	302	13,000,000	7
São Paulo	Santos to Jundiahy	140	140	23,555,850	7
	Extension of Mogyana line, and branch to Poços de Caldas	...	271	7,000,000	6
	São Paulo and Rio de Janeiro	231	231	10,665,000	7
Santa Catharina	Dom Pedro I	...	...	£4,000,000	6
	Thereza Christina	...	117	5,451,000	7
Rio Grande do Sul	Rio Grande to Bagé	...	280	18,521,458	7
	Bagé to Cacequy	...	...	Not fixed	..
	Quarahim to Itaquy	...	183	6,000,000	6
	Cacequy to Uruguyana	...	259	18,100,000	6
Rio Grande do Norte	Natal to Nova Cruz	121	121	5,496,052	7
Parahyba	Conde d'Eu	99	122	6,000,000	7
Alagôas	Maceió to Imperatriz	...	88	4,558,000	7
Espirito Santo	Victoria to Natividade	...	...	Not fixed	..
Rio de Janeiro	Campos to Carangola, and branches	175	187	6,000,000	7
Paraná	Paranagua to Coritiba	41	109	11,492,042	7
Minas-Geraes	Minas and Rio	170	170	16,150,000	7
Grand totals		1,547	3,008	....	..

Of lines neither owned nor guaranteed by the Government, there were, at the beginning of 1884, in operation, 2,570 kilometres, and in course of construction, 567; total, 3,137 kilometres.

Telegraphy.—There were in the empire, at the end of 1883, 4,887 miles of telegraph, with 139 offices; and the number of dispatches transmitted during the year 1882-'83 was 338,058. The receipts of the department amounted to 1,220,182, and the expenditures to 1,880,244 milreis. Telegraphic communication with the Argentine Republic, *via* Uraguayana, where the Argentine and Brazilian wires connect, was established February 2, 1883. Telegraphic service with the Eastern Hemisphere is carried on through the cables of the Brazilian Submarine Telegraph Company, limited. The concessions in favor of the American Telegraph and Cable Company were declared lapsed, by imperial decree, bearing date August 18, 1883, and, on the same date, permission was granted to the American citizens Henry Cummins, George D. Roberts, and George S. Cox to open up communication, by one or more submarine cables, with the United States, the concession to remain in force for twenty years, during which period the Imperial Government could not sanction the laying of any other between Brazil and the United States.

Telephone.—The telephone was introduced into Rio de Janeiro in 1882, and in January, 1883, concessions were granted for the establishment of telephonic communication in the cities of São Paulo and Campinas.

Post-Office.—The number of letters, etc., that passed through this department, in 1882–'83, was 36,767,325, against 35,845,869 for the year immediately preceding. The receipts of the department for the same year, 1882–'83, amounted to 1,220,182 milreis, while the expenditures reached 1,880,244. Deficits are the rule in the Brazilian Post-Office Department, as may be seen in the following table of receipts and expenditures for the decade beginning with 1873–'74:

YEARS.	Receipts.		Expenditures.		Deficits.	
1873-'74......	937:583	$315	1.115:195	$744	177:612	$429
1874-'75......	1.016:207	836	1.249:807	024	233:598	188
1875-'76......	1.059:035	390	1.377:328	994	318:293	604
1876-'77......	1.100:440	891	1.498:807	091	398:366	200
1877-'78......	1.145:224	814	1.617:364	287	472:139	973
1878-'79......	1.215:349	751	1.715:983	189	500:633	438
1879-'80......	1.303:099	185	1.724:108	774	421:009	588
1880-'81......	1.441:678	699	1.686:701	448	245:002	749
1881-'82......	1.513:871	805	1.814:351	606	300:479	804
1882-'83......	1.647:059	063	2.154:440	757	507:381	094
Totals......	12.379:570	$849	15.954:088	$914	3.574:518	$065

BRITISH COLUMBIA. See DOMINION OF CANADA.

BULGARIA, a constitutional principality in eastern Europe, acknowledging the suzerainty of the Sublime Porte. The National Assembly, or Sobranje, is a single chamber elected by direct universal suffrage, one member to every 10,000 inhabitants. The reigning Prince is Alexander I. of the grand ducal house of Hesse, in the cadet line of Battenburg. In 1881, with the sanction of a Grand Sobranje, or Constituent Assembly, the Prince assumed extraordinary legislative powers for seven years. On Sept. 20, 1883, when he restored representative government, he appointed the following ministers: President of the Council and Minister of the Interior, Zankoff; Minister of Finance, Natchevich; Minister of Foreign Affairs, Balabanoff; Minister of Justice, Stoiloff; Minister of Public Works, Ikolionoff; Minister of Public Instruction, Malhoff; Minister of War, Lieut.-Col. Kotelnikoff.

Area and Population.—The area of the principality is 63,972 square kilometres. The population, as determined in the census of Jan. 1, 1881, was 1,998,983. As regards religion, 68·8 per cent. were Christians, 30·7 per cent. Mohammedans, and 0·5 per cent. Israelites; in respect to nationality, 66·7 per cent. were Bulgarians, 30·6 per cent. Turks, and 2·7 per cent. of other nationalities. In 1883 the emigration of the Mohammedan element recommenced on a large scale. The capital, Sofia, contained 20,541 inhabitants; Rustchuk, 26,867; Varna, 24,649; Shumla, 22,921.

Commerce. — The total imports in 1881 amounted to 58,467,100 francs, in 1880 to 48,223,637 francs; the exports in 1881 to 31,819,900 francs, in 1880 to 33,118,200 francs. The leading article of export is grain. Wool, tallow, hides, and timber are also exported. The principal imports are textile manufactures, iron, and coal. The only line of railroad completed runs between Varna and Rustchuk, 224 kilometres. The state has 2,408 kilometres of telegraph lines in operation.

The Army.—The army law of 1879 compels every Bulgarian to serve twelve years in the army, four each in the active army, the reserve, and the Landwehr. The period of active service has been shortened to two years in order to form a reserve. The peace effective is 17,670 men. In case of war a field army of 36,000 troops can be raised.

Politics and Legislation.—When the restoration of the Constitution of Tirnova was proclaimed in September, 1883, the Extraordinary Sobranje, elected in December, 1882, was clothed with full legislative powers. Its term came to an end in January, 1884. Most of the work of the Soboleff-Kaulbars ministry was recast. The war budget was cut down by four million francs. It was enacted that at least two companies in every drujina should be officered by Bulgarians, a measure that necessitated the recall of all the Bulgarian officers attached to the Russian army.

The fusion between the Conservative and Liberal party having accomplished its object, the overthrow of the Russian ministers, the two Conservative members of the Cabinet, Stoiloff and Natchevich, retired. Their successors, Pomianoff and Sarafoff, were new to office. The difficulty with the Russian Government respecting the control of the Bulgarian army was arranged by accepting another Russian officer, Prince Cantacuzene, as Minister of War. After the withdrawal of the Conservative ministers the division between the Moderate Liberals and the Radicals was accentuated by the refusal of the Government to accept the co-operation of the latter, and admit the leader of the latter into the Cabinet. The Russian agent, Jonin, strove to effect in this way the unity of the Liberal party. Zankoff, who enjoyed great popularity upon entering office as a martyr of liberty, the champion of the Constitution, and the savior of the country from foreign domination, sank in favor with the people through his approval of an early revision of the Constitution and through a somewhat arbitrary administration, in which some of its provisions were slighted. In his relations with Russian representatives he did not preserve the independence that was expected. By resorting to repressive acts against his opponents he incurred positive odium. An alliance with the Conservatives was proposed; but in the June elections they lent their votes to the Radicals in the Liberal districts. The Sobranje was called to a preliminary extraordinary session for July 9. The Zankoff party was left in a minority, in spite of acts of official violence at the elections, which led to bloody collisions in Vratza and Lucovit. Karaveleff was elected President of the Chamber. The ministers thereupon gave in their resignations to the Prince, who summoned Karaveleff. The Cabinet was formed as follows: President, Minister of Finance, and Minister of Railways, Commerce, and Agriculture, Petko Karaveleff; Minister of the Interior, Slaveikoff; Minister of Foreign Affairs, Ilia Zanoff; Minister of Public Instruction, Karoleff; Minister of Justice, Radoslavoff.

The regular session of the Sobranje was opened October 27. The Zankoff party and the Conservatives had formed a coalition in the hope of upsetting the ministry, but found that they could not command enough votes, since the Karaveleff Cabinet were in agreement with the Prince as to proceeding to the construction of the Baribrod-Vacarela Railroad according to treaty, and other questions.

Foreign Relations.—During the recess a customs league was concluded with Eastern Roumelia, whereby no duties shall be levied on the frontier, except on tobacco and salt. A commercial treaty was entered into with Roumania also. The Porte has made many protests to the Bulgarian Government, and several times complained to the powers, but without effect hitherto, regarding violations of the Berlin Treaty in the treatment of the rights and property of Turkish subjects. The setting up of civil tribunals to take the place of the muftis, or religious judges, furnished the ground for a fresh remonstrance. A boundary dispute with Roumania with regard to the Dobrudja line and the possession of the forts at Arab Tabia, was not settled by a joint commission, which separated without agreement in June. The sovereigns and their ministers subsequently met and came to an understanding.

Conflict with Servia.—The two rivals for the primacy among the Balkan states became involved in the summer in a dispute that, before the friendly understanding between Russia and Austria, might easily have plunged them into a war and endangered the European equilibrium. After the suppression of the insurrection in the Timok district, the leaders who escaped the terrible vengeance of the Servian Government found a sympathetic reception in Bulgaria. The Bulgarian authorities kept a kind of surveillance over them, but allowed them to settle at Widdin, close to the frontier. The deposed Metropolitan Michael, who met with demonstrative greetings throughout Bulgaria, was also permitted to establish himself on the border of his old diocese. The complaints of the Servian Government led to the intercession of Russia, whereupon the revolutionary leader Pashic was removed to Sofia. After the Servian elections fresh disturbances broke out in the Timok district. The Servians represented that bands of refugees had crossed the border, destroyed a village that had been true to the Government during the insurrection, and committed pillage and murder in other places. The Bulgarian authorities denied that escaped revolutionists had entered Servia.

Zankoff thought it best to take a bold stand in view of the approaching elections. He met the Servian demands for the expulsion of the refugees with a demand that Servia should evacuate one of her frontier posts. This was on a large island in the Timok, opposite the town of Bregovo, and connected with it by a bridge. Three fourths of the island was Turkish territory before the Treaty of Berlin, and was used as a pasture by the townspeople. The Servian portion was divided off by a palisade, guarded by four sentries in a block-house. The Bulgarian Government now claimed this portion, although the peace of Berlin preserved the existing boundary-line. A Bulgarian force drove out the four guards and took possession of the block-house in the beginning of June. On the 6th the Servian agent in Sofia presented an ultimatum demanding the restoration of the block-house and the expulsion from Sofia and the border districts of all the refugees and the ex-Metropolitan Michael. Bulgaria offered to treat the Servian portion of the Timok Island as neutral, but the compromise was not acceptable. After the lapse of three days, as announced in the ultimatum, the Servian agent quitted Sofia. A day after, Bulgaria called her representative away from Belgrade. Servian troops were dispatched to the frontier. A martial fever pervaded Servia. The Bulgarians took little interest in the diplomatic quarrel; but the hostile mien of their neighbors began to infect them with a warlike spirit.

Prince Bismarck instantly placed himself in communication with Vienna and St. Petersburg, and with the approval of both cabinets admonished the two Balkan powers to compose or arbitrate their differences, because a resort to arms would not be permitted. In the autumn an understanding was reached, whereby Bulgaria promised to keep the expatriated insurgents at a distance from the Servian line, and Servia agreed to give up the position on the island in consideration of an exchange of territory or a money indemnity.

Agitation for the Union of Bulgaria and Eastern Roumelia.—The approach of the time for appointing a successor to Aleko Pasha gave occasion for fresh manifestations in favor of the incorporation of Eastern Roumelia in the principality. Mass-meetings were held in the principal towns of Eastern Roumelia and in Bulgaria, in which the citizens expressed their desire that the powers would modify the Treaty of Berlin so as to satisfy the aspirations of the Bulgarian people for political unity. The strongest motive of the Eastern Roumelians was supplied by the fact that taxes are much lighter in Bulgaria.

C

CALIFORNIA. State Government.—The following were the State officers during the year: Governor, George Stoneman, Democrat; Lieutenant-Governor, John Daggett; Secretary of State, T. L. Thompson; Treasurer, W. A. January; Comptroller, John P. Dunn; Superintendent of Public Instruction, W. T. Welcker; Attorney-General, E. C. Marshall; Surveyor-General, H. J. Willey; State Engineer, William H. Hall. Judiciary, Supreme Court: Chief-Justice, Robert F. Morrison; Associate Justices, W. H. Myrick, E. W. McKinstry, E. M. Ross, J. D. Thornton, J. R. Sharpstein, and S. B. McKee.

Extra Legislative Session.—An extra session of the Legislature convened, at the call of the Governor, on March 24, and remained in session until May 13. The Governor, in his proclamation, specified the objects he had in view in calling the session; which were mainly the passage of laws or constitutional amendments by which a new railroad commission should be established, taxes levied upon railroads the same as upon individual property, the delay or drawback of payment prevented, and the rates for passengers and freight regulated. A local reviewer says:

> That the railroad companies had successfully resisted the payment of their taxes ever since the present Constitution was adopted had very naturally incensed the people, who demanded some revision of our revenue system to meet the emergency. That those great corporations should be required and compelled to pay their just share of the expenses of the government that affords them protection admits of no question. And that their evasion of that obligation was the chief existing grievance against them, will hardly be disputed. But for that grievance the extra session would not have been called. Their successful evasion of the payment of taxes was due to the fact that the framers of the present Constitution saw fit to provide that railroad property should be assessed and taxed differently from all other property.
>
> The Legislature, when it convened, was under the control, in both its branches, of the men who claimed to be the especial friends of the Governor. They had induced him to call the session; had suggested to him the topics for consideration, and were supposed to have formulated the proper bills and constitutional amendments to effect the objects sought. But though, through their instrumentality, these amendments to the revenue article of the Constitution were given the prominence of a first mention in the proclamation, seven weeks of the session were absolutely frittered away in the consideration of matters of minor importance, having no relation to revenue, and finally the revenue questions were forced upon their attention by those who had not favored the calling of the session. And they had succeeded in getting one or two propositions into shape for final action when the promoters of the session, to avoid voting on them, forced an adjournment and went home.
>
> During the session there were introduced in the Assembly no less than sixty-three bills and propositions for the amendment of the Constitution, besides a score of concurrent resolutions, the latter mainly instructing our Congressmen how to vote on various measures pending at the national capital. In the Senate the bills and constitutional amendments introduced numbered thirty-two, making ninety-five in all. Of these, four bills and one constitutional amendment were finally passed by both Houses. Two of the bills were appropriations for the expenses of the session; another a bill to allow counties to fund their indebtedness in certain cases—designed to permit Yolo county to fund a floating debt of $5,000; and the fourth a bill to license boats engaged in fishing. The constitutional amendment that was adopted, and is to be submitted to the people for approval, is designed to exempt mortgages from being raised beyond their face value when the Board of Equalization orders an assessment raised. And that, barring the concurrent resolutions advising Congressmen how to vote in Congress, is the ultimate of fifty-one days' work by the Legislature.

Several cases involving the constitutionality of the system of railroad taxation are pending in the United States Circuit and Supreme Courts.

The opponents of the extra session charged that its promoters were affected by communistic tendencies, and desired to make party capital by unreasonable assaults upon the railroads. Many of the measures introduced were very radical. The result was disastrous to the Democracy. The November election wrought a political revolution.

Political.—The Prohibition Home Protection party held its State Convention in San Francisco in June. Delegates to the National Prohibition Convention were chosen, and presidential electors and Congressmen nominated. The main purpose of the party was set forth in the following passage in one of the resolutions:

> We declare the cardinal principles of our party to be the prohibition, by national and State constitu-

tional amendments, of the manufacture and importation of all alcoholic, vinous, and malt liquors not demanded for medical, mechanical, or scientific use, and the regulation by law, under some penalties, of the sale of such liquors for such use, and the absolute and total prohibition of the sale for any other purpose. We deprecate all attempts to substitute any system of high-license, so called, in place of prohibition of the liquor-traffic.

A Republican State Convention met in Oakland on April 30, and chose delegates to the Chicago Convention. Resolutions were passed favoring a protective tariff, in favor of amending the Chinese exclusion act so as to render it more stringent and make it perpetual, and instructing the delegates to vote for James G. Blaine.

The Democratic State Convention met in Stockton on June 10th. Delegates to the Chicago Convention were chosen, and presidential electors nominated. The convention declared in favor of Samuel J. Tilden for President and Thomas A. Hendricks for Vice-President, with Allen G. Thurman as second choice for President. A resolution was adopted repudiating the presidential aspirations of Stephen J. Field. Other resolutions approved the calling of the extra legislative session, declared against national banks, and favored the adoption of the proposed constitutional amendment providing for text-books in the public schools.

A second Republican State Convention was held in Sacramento in July, to nominate presidential electors. Resolutions were adopted favoring the text-book amendment to the Constitution, and demanding that the industry of the manufacture of the raisin shall be protected by a protective duty, and the restoration of the tariff on wool as fixed by the law of 1867.

Election.—At the election, on November 4th, the total vote was 193,738, of which the Blaine electors received 100,816; Cleveland, 88,307; St. John, 2,640; Butler, 1,975. Five Republican Congressmen were elected, while one Democrat (in the first district) was successful by a bare majority. Half of the Senate and the entire Assembly were voted for, and a large Republican majority in the Legislature was chosen. Three constitutional amendments were submitted to the people and adopted. The first authorizes water-works in cities and towns, the second provides for the printing of school-books by the State, and the third provides for a State Board of Equalization.

Education.—The number of pupils enrolled in the public schools in 1882 was 168,024; in 1883, 174,611; number of schools in 1882, 3,036; in 1883, 3,282; new school-houses built in 1882, 111; in 1883, 104; number of teachers in 1882, 3,777 (2,621 females); in 1883, 3,930 (2,816 females). The number of children between five and seventeen years of age is 222,846.

Crops.—The cereal product of the State in 1883 was as follows: Wheat, 32,659,870 bushels, grown on 2,634,710 acres; barley, 19,000,232 bushels, on 775,405 acres; oats, 3,632,657 bushels, on 122,618 acres; rye, 343,876 bushels, on 29,351 acres. In 1884 the following was the product: Wheat, 57,420,188 bushels, on 3,587,864 acres; barley, 23,432,240 bushels, on 966,763 acres; oats, 3,050,672 bushels, on 93,199 acres; corn, 5,988,316 bushels, on 170,332 acres. Sonoma county raised 3,440,000 bushels of the corn, and Los Angeles 1,150,000. The chief wheat-producing counties, in the order of their yield for the year, were, Stanislaus, Colusa, Yolo, San Joaquin, Tulare, Tehama, Merced, Contra Costa, Sutter, Los Angeles, Butte, Sonoma, Santa Barbara, Santa Clara, Fresno, Solano, Sacramento, and Monterey. The wheat yield of 1884 was the largest in the history of the State. The largest barley-producing counties were, Monterey, Santa Barbara, Santa Clara, Los Angeles, Butte, San Bernardino, Stanislaus, and Alameda.

Statistics.—The following table gives comparative statistics for San Francisco and California for 1882 and 1883:

	1883.	1882.
Clearing-House exchanges	$617,921,858	$629,114,120
Foreign exports of San Francisco	41,985,886	49,987,814
Exports to Atlantic States	8,744,808	5,280,860
Foreign imports (eleven months)	37,825,649	40,919,990
Overland railroad shipments, lbs.	287,992,600	322,184,280
Value of wheat exports	22,978,822	31,001,200
Amount of wheat-crop, centals	19,595,922	29,500,000
Wool product, pounds	40,848,690	40,527,119
Wine product, gallons	8,000,000	9,000,000
Quicksilver product, flasks	47,000	44,294
San Francisco real-estate sales	14,684,000	15,128,000
Value of buildings erected in San Francisco	5,261,669	8,896,212
Immigration—excess of arrivals	23,000	50,000
Number of business failures	429	384
Liabilities of insolvents	4,482,194	3,647,983

The number of convicts in the State Prison at San Quentin, Nov. 30, 1884, was 1,157.

Irrigation.—The fact that no rain falls during the summer months in most parts of California, and the ground becomes very dry, thereby arresting the growth of vegetation, renders it necessary to supply water to the soil artificially. In some of the dry sections, as in Los Angeles, San Bernardino, and San Diego counties, the water-supply is limited. For a part of this region the irrigation works and systems, as they existed in 1879, were grouped as follows by the State Engineer:

NAME OF SYSTEM.	Length of canals.	Acres irrigated.
	Miles.	
Los Angeles river system	72·45	8,000
Upper San Gabriel river system	44·50	8,905
Lower San Gabriel river system	82·50	19,808
Lower Santa Ana river system	46·50	9,750
Upper Santa Ana river system	76·00	8,985
Small ditches from Sierra Madre and San Bernardino mountains	88·60	5,495
Small ditches from Coast Range mountains	29·25	2,480
Cienegas in Los Angeles and San Bernardino counties	.....	6,622
Total	.....	64,490

Of the water-supply sent down by the Sierra Nevada into San Joaquin valley, only a small portion is utilized for irrigation. The rainfall in the valley is so insufficient for agricultural purposes that only one third of the valley land is under cultivation. The rest is nearly all good soil, but for lack of moisture appears in ordinary years like a vast desert. Oases have been created wherever irrigation has been practiced. Water diverted from Kern river in numerous canals near Bakersfield, irrigates more than 20,000 acres. About 80,000 acres are irrigated by water diverted from King's river, in canals having an aggregate maximum capacity of 2,000 cubic feet a second; probably 60,000 acres are supplied with water from the San Joaquin and Merced rivers combined. Kaweah and Tule river waters irrigate a combined area of about 30,000 acres. The area irrigated from Fresno, Chowchilla, and other rivers in the valley will probably aggregate 5,000 acres. There are then only about 215,000 acres in the San Joaquin valley irrigated by a water-supply that, at its lowest stage, estimated from the base of the foot-hills, is over 3,000 cubic feet a second. This amount of water flowing continuously ought to irrigate a much greater area; but it by no means forms the basis for an estimate of an upper limit of the amount of land for which the water-supply of the San Joaquin valley is sufficient. Their aggregate flow during May, June, and July, when the demand for irrigation is greatest, averaged for the years 1879 to 1882 over 38,000 cubic feet a second. The State Engineer's estimate, in 1879, of the area of land irrigated in the foot-hill counties, from Tuolumne to Butte, is 9,000 acres. He estimates the lands irrigated in 1879 from Cache creek, by means of three canals, at 13,400 acres. Irrigation is not confined to the above-named sections. The State Surveyor-General, in his report of 1879–'80, gives the following information: There are 2,225 acres of land irrigated in Alpine county; 7,450 acres in Inyo; 15,000 acres in Lassen; 24,000 acres in Modoc; 4,000 acres in Plumas; and 23,000 acres in Siskiyou. Irrigation is being extended as fast as capital for the construction of the necessary works in each locality becomes available. A State Irrigation Convention met at Fresno on December 3d. Its object was to frame a bill to be laid before the Legislature in January, for the regulation of irrigation. Recent decisions have been founded on the old common law of riparian rights, which can not be applied in California without serious hardship to many settlers. In the case of Miller & Lux *vs.* Haggan, to restrain the latter from diverting the water of Kern river, the Supreme Court decided that the purchase from the State of lands bordering on a water-course makes the purchaser a riparian proprietor against subsequent appropriation.

In the case of Lux *vs.* Haggan, a rehearing was subsequently granted. The Fresno Convention was in session several days. After a full discussion, a committee was appointed to draft bills for submission to the Legislature, embodying the following points:

1. The adoption of the cubic foot per second as the unit measurement throughout the State.
2. The institution of a system of making all water-rights a matter of proof and record.
3. A declaration by the Legislature that all the waters of the State in natural streams and lakes belong to the people, and are subject to appropriation by the people for irrigation, mining, manufacturing, and other useful purposes.
4. To provide the machinery for the voluntary formation of irrigation districts by which the owners of land may acquire water-rights, and assess the lands for the purpose of constructing canals, ditches, or other irrigation-works, or for purchasing those already constructed; provided, that waters already appropriated shall thereafter be utilized as at present, through existing works, or the extension of the same, so far as may be necessary for the irrigation of lands dependent thereon; and further provided, that no lands shall be taxed for the construction of works of irrigation except lands actually to be irrigated by said works.
5. So to extend the law of eminent domain as to allow an irrigation district, or a corporation outside of an irrigation district, to condemn and pay for rights of way, lands, canal districts, and water-claims, and rights of whatever nature, held by any person or corporation, or any other private rights of property, however existing or acquired, or by whatever name designated, which may be necessary for the appropriation or use of water; provided, that in condemning water used at the time of the commencement of an action for the same a manifest greater public interest shall be shown; that the irrigation district with power is defined as the sub-district within the hydrographic district, while the hydrographic district is one without condemning power, but with regulation power only.
6. To provide for a thorough and complete annual accounting for all the waters used by any and all districts or companies, and for a proper distribution of the waters of any stream between the appropriators, and for such other police regulations as may be necessary.

Débris Question.—On January 7th the United States Circuit Court decided the case of Woodruff *vs.* The North Bloomfield Gravel Mining Company and others. The opinion was by Judge Sawyer, concurred in by Judge Deady. This was a bill in equity to restrain the defendants, engaged in hydraulic mining, from discharging *débris* into the affluents of Yuba river, to be carried down into Sacramento and Feather rivers, filling up their channels, injuring navigation, overflowing and covering the adjacent lands with *débris*, and injuring and threatening to destroy the lands and property of the complainant and other land-owners on and adjacent to the banks of those streams. The suit was begun in September, 1882, and the testimony was taken in June, July, and August, 1883. The opinion of Judge Sawyer is very long. All the conclusions are clearly stated, and are in favor of the valley, maintaining its right to full protection from injury by hydraulic mining, and denying that any rights, by prescription or by grant, express or implied, from the State or United States, have been acquired on the part of the miners to prosecute the industry of mining in such manner as to produce injury to the navigable streams and destruction and injury to lands and property below. An appeal was taken to the Supreme Court of the United States.

CANADA, DOMINION OF. See DOMINION OF CANADA.

CANNED PROVISIONS. Their Wholesomeness.—The question whether danger may arise in the use of canned provisions, from formation of poisons by action of the acids on the tin or solder, has excited much attention. Frequent allegations have been made of persons consuming canned provisions having been seriously and even fatally injured by poisons thus developed; but in no case does the action or even the existence of such a poison appear to have been established with certainty. It appears, on the other hand, to be decided, upon the testimony of manufacturers, chemists, and physicians whose knowledge and integrity are beyond question, that when sound provisions are used, and proper care is exercised in selecting the material for the cans and soldering them, the consumption of goods thus preserved is absolutely safe. The possibility of danger can arise only from the use of provisions that have begun to decay, or of inferior or adulterated material in the cans, or from carelessness in the soldering. The question of the extent to which the danger, if there be any, of poisoning may exist, was investigated in 1882 by Prof. S. A. Lattimore, of the University of Rochester, analyst of the New York State Board of Health, who examined a large variety of canned goods, comprising peaches, plums, grapes, strawberries, cherries, blackberries, corn, beans, succotash, tomatoes, pumpkins, and peas, and reported that—

> No indication of adulteration was found in any of the canned fruits or vegetables. Attention was given to the possibility of the chemical action of the fruit acids upon the inner surface of the cans, whereby salts of tin and lead might be produced, rendering the contents in some degree poisonous. The application of the well-known tests of these metals failed to show any evidence of their presence. Some of the articles examined were canned in the summer of 1880.

Prof. Albert H. Chester, Ph. D., of Hamilton College, made examinations of canned meats, and reported also to the New York State Board of Health, saying:

> Many cases have been reported in the papers, where it is alleged that persons have been poisoned by the use of canned meats. I have never been able to obtain a sample of the meats which had produced such a result, nor have I seen any authentic report of a chemical examination of such meat showing the kind of poison. Many people in the West, particularly in mining and lumber camps, eat canned goods every day of their lives and do not suffer in consequence. In my own experience I have had gangs of men at work in the woods, frequently months at a time, eating canned corned beef, tomatoes, corn, peaches, and condensed milk every day, without a single case of sickness of any kind during the season.

The subject has been discussed in the Medico-Legal Society of New York, having been brought before it at its meeting of the 9th of April, 1884, by Dr. John G. Johnson, of Brooklyn, who made a report of six cases which had occurred in his practice in a family after having eaten canned tomatoes at lunch. The symptoms of the cases were those of violent poisoning; not merely of the sickness that would arise from eating damaged provisions, but symptoms accompanied by vertigo, coma, convulsions, and obstinate constipation, indicating the action of some chemically developed toxic agent. The tomatoes were indicated as the medium through which the poison was conveyed, for only those of the family who had eaten of them were affected. The poison appeared to be a substance held in solution, for those were most affected who had eaten of the juice of the tomatoes, while those who had taken only of the firmer parts of the conserve suffered less. Unfortunately, no analyses were made of the tomato-juice or of the evacuations of the patients, so it was impossible to determine what the poison really was. The symptoms varied from those of lead and of copper poisoning. Pursuing his inquiries, Dr. Johnson found that, in soldering on the cap of the can, muriate or chloride of zinc had been used as the amalgam, instead of the resin ordinarily employed. The saturated solution of this substance being applied with the brush after the manner of a paint to the groove of the can, it was supposed that a portion of the acid, having perhaps dissolved also some of the tin, had run into the can and thus been taken into the liquid portion of the tomatoes; and the author suggested that the peculiar color of the tomatoes, which he likened to a faded red, might have been produced by the bleaching action of the chlorine in that substance. Dr. Johnson closed his paper with a few rules for avoiding cans in which there was a possibility of the goods having been damaged or having imbibed poisonous matter from the metal or solder, among which were: "Reject every article of canned food that does not show the line of resin around the edge of the solder of the cap, the same as is seen on the seam at the side of the can," and "reject every can that shows any rust around the cap on the inside of the head of the can." Dr. Johnson's views were partially confirmed by Dr. A. W. Ford, of Brooklyn, who followed him with the relation of a case of sickness which he ascribed to the eating of canned apples. He, also, had failed to verify his supposition.

In opening the discussion on the papers, Mr. Clark Bell, presiding at the meeting, called attention to some cases of alleged poisoning by canned fruits in Glasgow, Scotland, and read from the "British Medical Journal" reports of those cases representing that the chemical analyses, made by order of the authorities, had failed to show any poison. Representative men connected with the canning industry in Baltimore and New York were present at the meeting by invitation, and traversed Dr. Johnson's conclusions. They admitted that they used the muriate of zinc in soldering the cans, because it was the most feasible and economical amalgam, and insisted that it was so diluted, with seven parts of water, that the danger of poisoning by it, if it existed, must be extremely remote. It was also maintained that, as the statistics of the trade showed that sixty million dozen cans of goods thus put up were exported, if that substance was so dangerous as it had been represented to be, it would have killed millions of people. Some allegations that had been made against the soundness of what are called "second brands" of goods were also replied to. The dealers represented that while those goods were in a certain sense inferior in quality to the "first brands"—that is, were not prepared from the choice specimens—they were perfectly sound and just as wholesome as the "first brands."

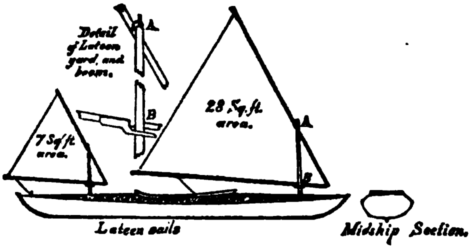
In connection with the discussion a letter was read from Prof. John J. Reese, of Philadelphia, who had had himself some cases of the character described in the papers, and had always been quite at a loss to determine the real cause of the "dangerous and even fatal results." In one marked case of sickness, after eating canned peas, he had made a chemical examination of the few fragments left in the can, and had wholly failed to detect any evidence of mineral poisons. "Besides," he added, "the peculiar and profound nervous symptoms can not, in my opinion, be accounted for on the theory of chloride-of-zinc poisoning," which would produce only the violent irritant symptoms. He remarked that similar symptoms had followed the use of ice-cream and cream-puffs in several cases, and suggested that "possibly some poisonous substance is generated, similar to, if not identical with, the ptomaines or alkaloids of putrefaction, which have lately been claiming the attention of toxicologists."

A committee was appointed to take the subject into consideration, and, having conferred with a similar committee representing the manufacturers and dealers in canned fruits, to report at some future meeting of the society.

Dr. Thomas Stevenson, Government Toxicological Analyst, London, has made the following statement, embodying the results of his own observations on the subject, which was read at a later meeting of the Medico-Legal Society: "Acute metallic poisoning by canned provisions is not known to have certainly occurred in this country, though the consumption of those goods is enormous. It is probable that chronic lead-poisoning may have occurred through contamination of the canned articles, but such cases have not been recorded. Now and then cases of acute poisoning occur, traced to the use of canned meats; but there is every reason to believe that this has occurred only where the food was tainted or bad. An inquest was held in 1883 in Pimlico, a district of London, where it was alleged that death was due to nitrate of tin, and it is said that a tin (or can) of meat was shown, from which, by corrosion, tin had been removed from the iron beneath; but I am not aware that any analysis was made confirmatory of the supposition. In February, 1884, several cases occurred of poisoning by a tin (can) of provisions, the symptoms being those of gastro-enteritis. Analysis showed that the food contained traces only of tin, but this is the rule in canned goods, and tin-poisoning was disproved. I have been Government Toxicological Analyst for thirteen years, but have never myself met with acute metallic poisoning by canned foods. Dr. Johnson arrives at very positive conclusions on altogether insufficient data. His remark that the faded appearance of the tomatoes is accounted for by the chlorine in the chloride of zinc, shows that he has failed to grasp the chemistry of the subject on which he writes. That canned goods usually contain traces of tin, has been shown by several British chemists, and is a well-established fact. That such provisions do not usually produce any serious illness, is a matter of common experience. I have myself experimented on the subject, and have fed dogs for weeks together with food contaminated with tin compounds, without injury. I have also watched the effect of the daily use, for a lengthened period, of tin-contaminated food by adult persons, also without obvious results. I am not prepared to say that tin compounds are inert, but evidence is wanting to show that the daily ingestion of fractions of a grain of tin compounds is manifestly injurious to health."

CANOES. The word "canoe" is of American origin. The early Spanish explorers translated it into *canoa*, and the French into *canot*, and the dictionaries define it as a rude boat, hollowed from a log, or made from skins or bark, and used by savage races. The past twenty-five years, however, have brought canoeing into prominence as a means of outdoor recreation, especially in Great Britain and her colonies, and in the United States. The canoe has been civilized, and has become in effect a small yacht, capable of making extended cruises wherever there is water a few inches in depth, and under all conditions practicable or safe for any small boat. Canoeing, as a recognized recreation, is definitely traced back to the time when John MacGregor, an Englishman, conceived the idea of building a boat that should combine the sea-going qualities of the Esquimau kyack with the constructional strength and nice finish of scientific workmanship. The first result of this experiment was the "Rob Roy," in which Mr. MacGregor made his famous voyages on the Jordan, the Nile, and other rivers, seas, and lakes. His books introduced canoeing to the English-speaking world, though as a recreation for gentlemen it has, in a less elaborate form, been popular in Canada since the early days of the French occupation.

It will be seen from the engraving that the original "Rob Roy" type is without "sheer"—that is, without an upward rise of deck and gunwales at the bow and stern. This rendered her somewhat uncomfortable and wet in a seaway, and led to the construction of the "Nautilus," which had a decided, at first an excessive, sheer, but was greatly the superior of the "Rob Roy" in rough water, and for extended expeditions. The "Rob Roy," moreover, was narrow, and consequently liable to upset; therefore the floor of the "Nautilus" was made flatter, and her breadth of beam was increased. These two models were the types of the modern civilized canoe, but numerous variations have been made from their lines, and so many changes in nomenclature are constantly adopted for the sake of convenience by builders and designers, that no complete catalogue can be attempted here. In a general way, all may be grouped in one or the other of four classes:



THE ROB ROY.

I. The Rob Roy. Small, light, narrow, and intended mainly for paddling in smooth water. Small power under sail. Decked fore and aft.

II. The Nautilus (in which class the "Shadow" model is best known in the United States)—14 to 17 feet long, by 28 to 32 inches beam. Has more or less sheer fore and aft, and can safely carry from 50 to 80 square feet of sail. Decked fore and aft.

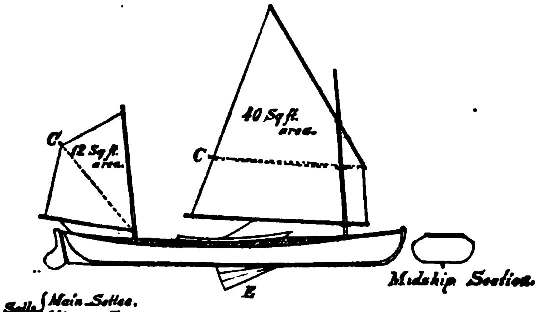
III. The Pearl. Same general dimensions as foregoing, but deeper, heavier, and stronger. Intended mainly for deep-water sailing, and capable of spreading from 100 to 150 square feet of canvas. Decked fore and aft.

IV. Open canoes. These are mainly of Canadian build, and are of all sizes. They have a general resemblance to the Indian "birch," after which they were originally modeled. They are well adapted for the use of hunters and frontiersmen; have great carrying capacity, and are frequently provided with sails. They are sometimes decked over, to render them more seaworthy.

Paddles are the special implements of canoe propulsion. The canoeist faces the bow, and can see where he is going; whereas the oarsman faces the stern, and is obliged to turn in order to keep a lookout ahead. This, in fact, is the most distinct difference between canoes and other small boats. The paddle may be either single or double, the latter being usually made of spruce, and from seven to ten feet in length. Single paddles are used mostly by hunters—indeed, they are essential for their purposes—but the double blade is generally used by amateur canoeists on extended trips.

A modern canoe, then, may be defined as a boat, sharp at both ends, and capable of being effectively propelled by one man, seated amidships, and using a double-bladed paddle. These paddles are usually made in two parts, jointed in the middle by means of brass ferrules. The canoeist is provided with a seat and a backboard (the latter an essential in this method of paddling), and delivers his strokes alternately on one side and the other of the canoe. Steering may be effected by means of the paddle alone, or with the aid of steering-gear, against which the feet press as against a rowing-stretcher, and which is connected with a rudder by means of ordinary yoke-lines. This steering-gear, while not essential, adds greatly to the ease and quickness with which the canoeist can manage his boat. Indeed, it can hardly be dispensed with in paddling for a long distance across the course of or against the wind.

The canoe, as has been said, is usually decked over except in the middle, and under a portion of the decked space are water-tight compartments that contain sufficient air to keep the boat afloat in case of accident. These are best made of sheet-copper or other non-rusting metal. Such, in its simplest form, is the modern canoe. The equipments and fittings in common use are so numerous and elaborate that they can not here be enumerated; but it should be said that one object of the canoe is to provide a sleeping-place for her owner when camping out. To this end the clear floor-space amidships should be at least seven feet long, part of this being below decks, so that when covered with a tent or awning the occupant may be perfectly protected from rain. The spare room below decks is used for stores and equipments. The complete canoe is a sailing-craft. The sails are of every conceivable size and shape, but only those that have been thoroughly tested are here described. As the canoeist is obliged to sit amidships, it is for many reasons desirable to carry two sails—a large mainsail forward, and a smaller mizzen aft. This last is also known as a "dandy" or "jigger." The mizzen adds to the "weatherly" qualities of the canoe when under sail, and renders it



THE NAUTILUS.

possible for her to "lie-to" in case of need, with her head to wind and sea. The chief advantage of the lateen sail is, that it can be instantly and wholly detached from the mast, and rolled up for stowage on deck or elsewhere. The masts, being very short, do not interfere with paddling, and may, therefore, be kept in position all the time while afloat. There is the further advantage of simplicity in the absence of running-rigging, the sheet being the only line absolutely necessary. The lateen may, however, be fitted with halyards, down-haul, and reefing-gear, if desired. The settee is an improvement upon the lateen, in that the lower part can be readily reefed by means of running-lines attached to its single batten, C, as in the case of the lug (*infra*). The mast-attachments are variously arranged, boom-jaws similar to those of the lateen having been successfully applied. When reefed, the settee becomes a lateen.

The lug-sail will drive a canoe through the water faster than any other now in use. Its general shape is as shown. C C are light spars, or "battens," usually of ash or bamboo, which are inclosed in "pockets" running across the sail, occasional slits being necessary for the attachment of "parrels," D D, reefing-gear, etc. The reefing-gear can not be shown in an engraving of this size. It consists of lines attached to the successive battens, and running through rings to the boom, where again they pass through small blocks. A pull on these lines hauls the batten close down to the boom. The lines are then made fast to cleats. There are various ways of rigging these reefing-lines, each of which has its special advantages. The sail is hoisted and lowered by means of ordinary halyards and down-hauls, and "parrels" at the two spars and at each of the battens hold it close to the mast when set.

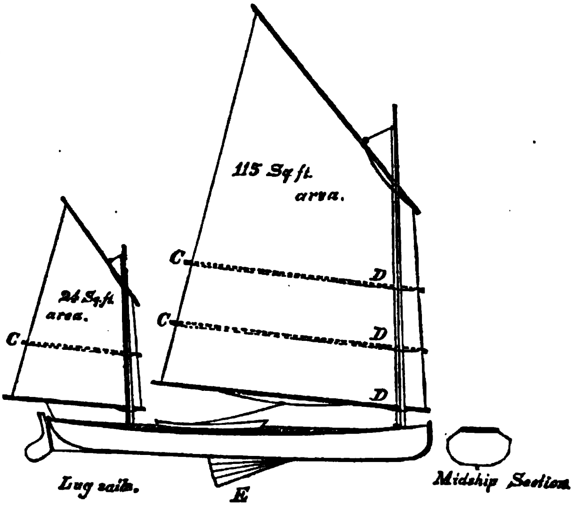
The mizzen, shown in Fig. 2, is a "fan-sail." It is very easily reefed by hauling C close to the mast and making it fast. It is a very convenient form for a small sail.

All running rigging, such as halyards, reefing-gear, down-hauls, etc., should lead aft or forward to within easy reach of the hand.

Canoes are built with or without keels. For sailing-canoes, a keel or its equivalent is essential in working to windward. For paddling, it may be dispensed with. There are several patented forms of folding center-boards, E, which are much used on sailing-canoes. An ordinary keel, however, an inch and a half to two inches deep, is sufficient for general purposes.

Canoes are usually built of white cedar, and the ordinary lap-streak method of construction is perhaps the most common. But they are often made with a smooth outside skin, this method being very popular in Canada, where it has been brought to great perfection for lightness and strength.

The canoe has no superior among small boats for general utility in pleasure-cruising. Some prudence and skill, easily acquired by experience, are requisite for its safe management; but with due exercise of these its owner may go almost anywhere on inland or coastwise waters, always having a good shelter with him, and being able to transport all the stores and equipments necessary to comfortable camping.



THE PEARL.

There are several thousand canoeists in the United States and Canada. Many of them belong to the American Canoe Association, and scattered over the country are numerous local clubs. The "American Canoeist," New York, is the official organ of the association. It is now in its third volume, and is the only publication of the kind in the world. See "Rob Roy on the Jordan," "Rob Roy on the Baltic," "A Thousand Miles in the Rob Roy," etc., by John MacGregor; "Management and Handling of Canoes," by "Tiphys"; "Voyage of the Paper Canoe," by N. H. Bishop; "Canoeing in Kanuckia," by C. L. Norton and John Habberton; "The Canoe and the Flying Proa," by W. L. Alden; "A Canoe Trip," by A. F. Seymour; "Yacht and Boat Sailing," by Dixon Kemp; "Cruises in Small Yachts and Big Canoes," by H. F. Speed; "Three in Norway," by Two of them; and "Canoe Voyage," by W. Baden-Powell.

CAPE COLONY AND SOUTH AFRICA. The Cape of Good Hope is a British colony possessing responsible government. The members of the House of Assembly and the Legislative Council are elected by limited suffrage. The Governor is Sir Hercules Robinson, appointed in 1880. The Prime Minister is Mr. Upington, who in May, 1884, succeeded Sir T. C. Scanlen.

Area and Population.—The area of Cape Colony, with British Kaffraria and the annexed districts of Basutoland, Griqualand West, and the Transkei, is reported as 221,950 square miles. The total population in 1881 was 1,249,824.

Commerce.—The value in United States money of the imports in 1882 was $41,762,635; of the exports, $21,051,702. Wool, the second largest article of export, has decreased in recent years, while the exports of ostrich-feathers, copper-ore, and Angora hair have largely increased. Diamonds, the leading commercial product of the country, are not included in the custom-house returns, as they are forwarded through the post-office. The value of the shipments increased from $8,796,354 in 1876 to $20,823,487 in 1881. The export in 1882 was $19,429,510. The illicit traffic is also very large, but can not be estimated. The colony has suffered a severe commercial depression, caused by short crops in 1881 and 1882, a small-pox epidemic in the latter year, a panic in diamond-mining stocks, the cessation of large war expenditures, and over-importation of goods. The colony imported in 1882 nearly $3,000,000 worth of grain and flour, and about $750,000 worth of provisions. The tonnage entered at the ports of the colony in 1882 was 3,058,876 tons; cleared, 3,034,015.

Railroads and Telegraphs.—Nearly 1,000 miles of railroad were authorized in 1876, and about 500 miles more in 1881. The entire network, the largest in proportion to the public debt of any British colony, was about completed at the end of 1884. The telegraph lines open at the beginning of 1883 were 3,466 miles in total length, with 6,951 miles of wire.

The Diamond-Fields.—The speculation in mining shares a few years ago was one of the most remarkable financial bubbles of modern times. When the crash came, the whole credit system of Cape Colony was unhinged. The falling of the reef in the older mines was a more permanent cause of depression in this industry. None of the great companies now pay dividends. The reef is the non-diamondiferous rock which is mingled in alternate folds with the diamond-bearing "blue ground." It was left standing in great walls in the vast excavations, five hundred feet deep or more, and has now fallen, covering the whole bottom of the mines. To remove it requires an outlay of capital which the mining companies can hardly command, since European investors are now shy of such property. To mine underneath it by shafts and galleries would necessitate a complete redistribution of mining claims. The former plan is therefore more feasible. Engineers are engaged upon the problem.

Both white and colored laborers are employed in the mines. Illicit diamond-buying, though punishable with five or ten years' penal servitude, is carried on to an enormous extent. Many of the finest gems reach the European market clandestinely. The companies in their financial straits recently adopted more stringent methods to stop these thefts. One of the regulations required the laborers to be stripped and searched at the end of the day's work. The men struck in April and attempted to put out the fires of the engines, when their leader and several others were shot. They paraded the streets of Kimberly, 4,000 in number, and held excited meetings. Police and troops from the Cape put an end to the demonstrations.

An explosion of forty tons of dynamite and five tons of gunpowder in the magazines near Kimberly in January shows how local is the explosive effect of nitro-glycerine preparations. Window-panes were shattered as far as two miles away, but no other damage happened to the town. An earth-shock traveled in some directions over sixty miles.

Finance.—The revenue in 1881–'82 was £3,529,000, an increase of about £500,000 over the preceding year. In 1882–'83 it fell off to about £3,304,000. The expenditure in 1881–'82 was £3,285,000, and that for 1882–'83 over £3,700,000, not including in either year the war expenditure, which in 1882–'83 amounted to £180,000. The debt in 1881 was £18,262,000. To supply the deficiency in the revenue the general customs tariff of 10 per cent. ad valorem was raised by an act passed in 1883 to 25 per cent. Special duties were imposed in addition upon spirituous liquors, mineral oils, and certain other articles.

Change of Ministry.—The conflicts with the Transvaal Boers led the Dutch rural population, who constitute the vast majority of the people of Cape Colony, to take an active part in politics, and brought about the formation of a distinctly Africander party. In the senatorial elections of February, 1884, they obtained control of the Legislature. When Parliament met in May they assailed the Government for removing restrictions on the importation of vines and bulbs, thereby subjecting vine-growers to the risk of phylloxera. The Scanlen ministry resigned and a new one was formed from the Dutch party, composed as follows: Upington, Premier and Attorney-General; Ayliff, Colonial Secretary; Gordon Sprigg, Treasurer-General; Schermbrücker, Commissioner of Crown Lands and Public Works; and De Wet, Secretary for Native Affairs.

Annexations.—The desire of the Cape Government to prevent the establishment of a German settlement on the west coast was the chief cause of the long delay of the British Foreign Office in answering Prince Bismarck's inquiry regarding Angra Pequeña. The new ministry held the same views with regard to the neighborhood of a foreign power, but looked forward to the incorporation of all the outlying native territories in Cape Colony. They expected the Imperial Government, however, first to establish sovereign rights over the districts that they feared would fall into the hands of Germany. The English Government was willing to hand over to colonial administration the districts already subject to Great Britain, and insisted also on leaving to Cape Colony the responsibility, or at any rate the initiative, as regards new annexations. During the summer the Cape Parliament passed acts in favor of the annexation of Bechuanaland and of the Transkeian Districts. The district of Walfish Bay and St. John's territory in Pondoland were taken under colonial jurisdiction. The whole coast north of the Orange river as far as the mouth of the Cunene, excepting the German plantation at Angra Pequeña, was annexed by resolution. The chief Umquikela announced that he would resist the occupation of the mouth of the St. John's, and forbade the passage of troops through Pondoland.

Natal.—This colony is administered by a Governor, with the assistance of a Council, partly elective. The area is reported as 18,750 square miles. The population in 1881 was 413,167; the population of European race, 25,271. The total exports in 1881 were valued at £768,000, the imports at £1,913,000. The receipts of the treasury were £440,000, expenditure £395,000; the public debt, £1,632,000. The Legislative Council in 1884 rejected the proposal of the home Government to endow the colony with responsible government.

Basutoland.—The Imperial Government took over from the Cape authorities the administration of Basutoland in December, 1883. Colonel Clarke was appointed Resident Commissioner in January, and given a police force of 80 men, afterward increased to about 150, to protect life and property and maintain order on the border. In 1866, after a series of wars with the Basutos, which sapped the strength of the Orange Republic, the Free State Boers conquered the savages and were proceeding to annex their territory when Sir Philip Wodehouse stepped in and made the Basutos British subjects. By the treaty of Aliwal North Great Britain promised to maintain order and prevent incursions. The Boers have recently complained of the disturbed state of Basutoland and of extortions practiced on traders by the chiefs. In July Sir John Brand made formal representations to that effect.

Masupha and his allies, whose influence was paramount in Basutoland, refused to submit to control or to pay taxes. No attempt was made to enforce obedience, but in October Colonel Clarke had an interview with Masupha, at which he threatened coercion if the hut-tax of ten shillings were not paid.

The Bechuanaland Question.—The Transvaal Boers acquired possession of Bechuanaland in 1837 and 1838 by reconquering the country from the Zulu chief Moselikatse, who had driven out or enslaved the Baralongs and Batlapins. The Boers restored the lands to Montsioa and the other Bechuana chiefs, over whom they continued to exercise jurisdiction, incorporating the country in the Transvaal as the district of Bloemhof. When diamonds were discovered near the Vaal river in 1871, the English broke the Sand River Convention with the Boers, which bound the British not to interfere north of the Vaal. Sir Henry Barkly, the British High Commissioner, and President Pretorius, of the South African Republic, arranged in 1871 to settle by arbitration the southwest boundary of the Transvaal, which was brought into dispute by the British annexation of Griqualand. Lieutenant-Governor Keate, of Natal, in his award, took away from the republic the whole Bloemhof district, and affirmed the independence of the Bechuana chiefs. This award was rejected by the Volksraad; yet the English insisted upon it as binding until the annexation of the Transvaal in 1877. Sir Theophilus Shepstone, the English Administrator, then declared Bloemhof to be a Government district, and the seat of a magistracy. When the Boers rebelled against the English rule, a contest was in progress between Montsioa and Moshette for the head-chieftainship of the Baralongs. Moshette was the paramount chief by right of birth; but while he was without followers or lands, living as an indentured laborer with the Boers, Montsioa was a powerful chief, and in 1870 was chosen by the others as the head of the nation. In the struggle between the two chiefs Moshette was abetted by the Boers, while Montsioa was aided and encouraged by Englishmen. The fate of the Keate award was held to depend on the issue. The other Bechuana tribes became involved in the conflict. A quarrel had arisen between the Koranna chief, David Massouw; and the paramount chief of the Batlapins, Mankoroane, on account of a head-man of the latter who had taken refuge with Massouw. An alliance was formed by Massouw with Moshette, and Mankoroane made common cause with Montsioa. During the Transvaal war Montsioa and Mankoroane sheltered English fugitives, and were promised protection by Sir George Colley.

By the Treaty of Pretoria, in 1881, the district of Bloemhof was again separated from the Transvaal, and declared to be an independent native district. The Boers protested at the time against this clause in the convention, and soon afterward demanded its revision. Their native allies drove away the English officer who came to beacon off the frontier. As soon as the British army left the Transvaal, the native war broke out afresh. The chiefs friendly to the Boers, aided by a large number of Dutchmen from the Boer republics and the Cape, fell upon Montsioa and Mankoroane, who were aided by English volunteers. The Batlapin chief was soon deprived of the greater part of his lands and cattle. Farms were portioned out among the white volunteers, who founded the republic of Stellaland. Upon lands wrested from Montsioa another republic, called Goshen, was organized.

The Convention of London.—The Boers entered unwillingly into the Peace of Pretoria, but acceded rather than recommence hostilities. They objected to being deprived of their republican title, and to the debt incurred by the British administration, and, most of all, to the southwestern boundary. They made their contention good by resuming the style of South African Republic, failing to meet the payments of the debt, and fomenting the disturbances that led to the establishment of petty republics across the border. The English Government, in 1883, expressed a willingness to modify the terms of the convention in so far as they were impossible of fulfillment on the part of the Transvaal State. When the friendly chiefs were ousted from their domains in Bechuanaland, and their people reduced to wretched straits, the British authorities were spurred to take a more resolute tone. The Transvaal Government disclaimed responsibility for the acts of the citizens of Stellaland and Goshen, yet insisted on the untenability of the boundary of the Pretoria convention. About the beginning of 1884 President Krüger, Gen. Smit, who defeated the British at Majuba Hill, and Minister of Education Du Toit, who came as interpreter, arrived in England to treat with the English Government for the revision of the convention of 1881.

A new convention was concluded February 27. The independence of the Transvaal was re-established in all particulars save one. England still required the South African Republic, under which name, instead of the Transvaal State, the Boer Republic was now recognized, to submit for her approval any treaty entered into with native tribes outside the Transvaal, or with foreign nations, the Orange Free State excepted. If no objections are raised by the London Government within six months, the treaty goes into force without English sanction. The British residency in Pretoria was abolished. The British claim for the administration of the country from 1877 to 1881 was reduced to £250,000, bearing 3½ per cent. interest, to be extinguished in twenty-five years. The anti-slavery provision of the Sand River Treaty was repealed. The republic accords religious liberty to all persons dwelling within its dominions, and equal rights to all white persons taking up their residence in the Transvaal. Persons who immigrated during the British administration, and fought on the side of England, shall suffer no prejudice in their persons or property. The Swazi tribes are to remain independent. The right to acquire land is promised to the natives of the Transvaal, also equal access to the courts. No higher duties than the existing ones shall be levied on English imports.

The convention fixed a new southwestern boundary-line, which incorporated in the Transvaal a part of Stellaland and a small strip of the land of Goshen. The Boer delegates were anxious to incorporate in the Transvaal Moshette's and Massouw's territories and Stellaland. Sir Thomas Scanlen, the Cape Premier, objected to this arrangement, because it would place within the Transvaal one hundred miles of a certain trade-route. The Cape Government offered to bear a fair share of the expenses of a joint protectorate. Lord Derby insisted on preserving this trade-route and the dominions of Montsioa and Mankoroane from Boer control, and obtained the reluctant consent of the plenipotentiaries of the Transvaal to a line drawn with these objects. The British and Transvaal governments were each empowered by the treaty to appoint commissioners for the maintenance of the boundaries and the preservation of order on the western and eastern sides of the Transvaal. In case of a divergence of views between the representatives of the two governments, the matter is to be referred to Sir John Brand, the President of the Orange River Republic, as umpire.

British Protectorate over Bechuanaland.—Soon after the convention of London was signed, an imperial protectorate was proclaimed over Bechuanaland. Rev. J. Mackenzie, formerly a missionary, was appointed Deputy Commissioner. He arrived in Bechuanaland about the 1st of May. Mankoroane, Montsioa, and the other chiefs who were favorable to the British, signed treaties accepting the protectorate. Mackenzie's instructions authorized him to leave the Stellalanders in possession of their lands, and to appoint an assistant commissioner to administer the affairs of the community. The Goshenites were to be ejected, and their lands restored to Montsioa. The Deputy Commissioner was authorized to raise a force of ten police, with power to increase the number to twenty-five, and later to one hundred.

Events in Stellaland.—Mr. Mackenzie spent a long time in treating with the Volks Committee and the administrator of Stellaland. The people were many of them from Cape Colony, while the Goshenites were all Transvaal Boers. When the Stellalanders were convinced that the policy of the imperial authorities was to confirm the titles they received from Massouw, and eventually incorporate the district in Cape Colony, many of them were favorable to the protectorate. The Volks Committee and the inhabitants assembled in a general meeting and petitioned the Cape Parliament in May to annex Stellaland to Cape Colony. There was a party fiercely opposed to the British protectorate, and anxious that the territory should be restored to the South African Republic. The administrator, P. J. Van Niekirk, sympathized with these aims. Mackenzie offered to continue him in office, and nominated him Assistant Commissioner. Van Niekirk gave no decided answer. With the rest of the Boer sympathizers he waited for the result of the petition to the Cape and for the developments of the British policy. When Mackenzie proceeded to employ force against the Goshenites, the Stellalanders divided into two antagonistic parties. Those who were satisfied with the security to their property offered by the British protectorate and the prospect of admission to Cape Colony, were represented by the majority of the Volks Committee, an advisory body established before the arrival of Mr Mackenzie. The administrator and other executive officers took a thorough-going Africander view. When Mackenzie, with the sanction of the Volks Committee, summoned Van Niekirk to Taungs, Mankoroane's capital, to take the oath of allegiance, he answered, July 7th, that he would under no circumstances accept office under the Queen. The executive officers then disbanded the Volks Committee, warned Mr. Mackenzie against interfering with the Republic of Stellaland, and called upon the burghers to hold themselves in readiness for military action. Mackenzie proceeded to Vryburg, the capital of Stellaland, and attempted to establish the protectorate over the heads of the government officers and the Boer party. He took away the ensign of the republic, and hoisted the British flag. It was immediately torn down. He employed military force to maintain his authority. The community was plunged into anarchy. Mackenzie requested of the High Commissioner an armed force to support his action in Stellaland and Goshen, and received permission to raise one hundred frontier police, of which number he recruited thirty or forty in Griqualand and Stellaland. The Boer party also prepared for hostile action. At this point the British authorities gave way to the earnest representations of the Transvaal Government and the ministry at the Cape, and recalled Mackenzie in the beginning of August. Mr. Rhodes, a member of the late Colonial Cabinet, was appointed his successor, with the title of Special Commissioner, and Capt. Bower was placed in command of the police. They drew down the English flag, restored the Stellaland colors to Van Niekirk, disbanded the burgher police, withdrew all the armed forces, and left the people to themselves. Soon after Van Niekirk entered the town at the head of a military force, hoisted the Stellaland flag, and imprisoned those who had been foremost in welcoming the English rule. Mr. Rhodes subsequently persuaded the burghers to suspend hostilities pending the annexation of Stellaland by the Cape Government.

Events in Goshenland.—Montsioa, a few days before the arrival of Mackenzie in Bechuanaland, fell upon the Boer farmers who had settled in his country and drove them all out, taking their cattle and burning their houses. They numbered about forty individuals. Across the border, at Rooi-Grond, in the Transvaal section of Goshen, they formed a military organization under the command of Nicholas Gey. Volunteers were openly recruited in the Transvaal. When the British authorities remonstrated with the Transvaal Government, a proclamation was issued, but no active measures were taken to suppress the commands. Mackenzie then visited the Goshenites at Rooi-Grond and proposed to take the place under British protection, but they refused to treat with him. He concluded a treaty with Montsioa May 20th. On the 13th of June the Rooi-Grond volunteers, or freebooters, as they are termed in English reports, made their first attack on Montsioa's kraal. On the 31st of July Montsioa's cattle, which the Boers had captured a few days before, were paraded in front of his town as a *ruse* to draw out his fighting-men. While his whole force were in pursuit of the party with the cattle, the main body of the Boers, over 200 in number, fell upon their flank, killing 100 and losing 30 of their own men. In this fight Christopher Bethells, the officer in command of the police which Mackenzie had sent to re-enforce Montsioa, was killed. According to the report accepted in England, he was murdered after he was wounded in action. The Boers had destroyed Montsioa's capital, captured all his cattle, and slain most of his warriors. The aged chief was willing to treat for peace, and accepted the overtures of an unofficial agent of the Transvaal Government. The commands took the British Assistant Commissioner Wright prisoner under cover of a flag of truce, but afterward released him. Vice-President Joubert arrived at Rooi-Grond and concluded a formal treaty with Montsioa, taking him under the protection of the South African Republic. The volunteers portioned out among themselves the best part of his lands. President Krüger notified the British Government that in the interests of humanity, and to stop the border fighting, the South African Republic had concluded, subject to their approval, a treaty with Montsioa and the Republic of Goshen, establishing a protectorate over them. After a correspondence with Sir Hercules Robinson, Lord Derby sent a dispatch in the beginning of October to the Cape authorities, asking them to call upon the South African Republic to annul its action. Thereupon the proclamation of the protectorate was withdrawn.

Expedition to Bechuanaland.—When the British Parliament met in the fall, the Goshenites were in possession of all the Baralong country, the Stellaland people had repudiated British protection, and the trade-route was practically controlled by the Transvaal. The Cape ministry had strongly disapproved the high-handed proceedings of Mr. Mackenzie, and when asked to contribute the £5,000 a year, promised by Sir Thomas Scanlen, their half of the expenses of the protectorate, answered that they would have no part in a course of action likely to bring about a race-quarrel between the English and the Dutch in South Africa. The British Government, in their entire South African policy, were solicitous above everything to have the approval of public opinion among the Dutch population of the Cape. The German annexations in that part of Africa, and the cordial feeling recently developed between Germany and the Transvaal, spurred the English Government to take a firm and vigorous course in the Bechuanaland question, and to compose their other differences with the Transvaal. The German aspirations tended also to cement the relations between Cape Colony and Great Britain, and reconcile the colonists to an imperial policy. The Colonial Government still refused to join with the imperial authorities or undertake any expenses in Bechuanaland except for the purpose of annexation. They raised no objection, however, to British action. The general feeling in the colony was strongly in favor of enforcing the convention and establishing the protectorate. With many of the Cape Colonists the interests of the protected natives would be no safer than in the hands of the Boers. The desirability of the rich farming and grazing lands, which contained a population of only 20,000 souls, was freely expressed in the colonial press. The British Government obtained from Parliament a vote of credit for £750,000. Col. Sir Charles Warren, who formerly served in Griqualand West, was appointed to conduct an expedition to Bechuanaland. He was authorized to raise 1,500 volunteers. The force was recruited in England. A great number of gentlemen, some of them military officers, joined the ranks, anxious to have a brush with the Boers, and retrieve the defeats of the Transvaal war. These irregular troops were to be supported by a large force of regular soldiers. Before the arrival of the expeditionary force, which departed from England in the middle of November, the Cape ministry went to Bechuanaland, the British Government having empowered them to secure, if possible, the restitution of Montsioa's lands by pacific means on the basis of annexation to Cape Colony.

Zululand.—After the deposition of Cetewayo, the British Government, on the advice of Sir Garnet Wolseley, divided Zululand between thirteen kinglets, who began to "eat up" one another when left to themselves. The Zulus were divided into two main parties, the adherents of the deposed monarch and those attached to the fortunes of the more ambitious of the new chiefs set up by the English, John Dunn, Cetewayo's brother Oham, Hlubi, and Usibepu, who espoused the British cause in the Zulu war. Five of the kinglets and the main bulk of the nation desired the restoration cf Cetewayo. The British Government adopted this plan as a means of putting an end to the anarchy, rather than annexing the country, or imposing a military control that would result in annexation. Sir Henry Bulwer and the people of Natal feared the re-establishment of the Zulu military power. To satisfy them and to keep faith with the chiefs and people hostile to Cetewayo, a strip next to the Natal border, comprising about one third of Zululand, was reserved as neutral native territory under imperial jurisdiction. Those who were unwilling to accept Cetewayo's rule could obtain lands in this Zulu Reserve. Usibepu, the most powerful of the kinglets, was left in possession of an extensive country in the north. Cetewayo returned in the latter part of 1882. In June, 1883, he was surprised by the combined armies of Usibepu and Oham, his army routed, and himself driven a fugitive into the Reserve. The country of the Usutus was devastated by their enemies. In March, 1884, Cetewayo died in exile. The Usutu army then mustered again, and the war was renewed. Usibepu and his ally Hlubi again defeated the Usutus and announced the intention of annexing their country. In the south the Usutus encountered the forces of Oham and John Dunn, and made an incursion into the Reserve, threatening Resident Commissioner Osborn, until re-enforcements of regular troops arrived. The Usutus in May accepted the assistance of Transvaal Boers. The sovereignty of Cetewayo was in dispute between Undabuko, Umnyamana, and other claimants. The Boers, who came in violation of a proclamation of the Transvaal Government, ostensibly as peace-makers, proposed to set up Cetewayo's young son Dinizulu, the rightful heir. The Usutus agreed to this decision. The hostile chiefs also acquiesced, on condition that they were not to be disturbed in their possessions. Dinizulu was crowned in the presence of several thousand Zulus and about two hundred and fifty Boers on the 21st of May. The Boers were allowed to establish a township in the vicinity of Dinizulu's capital, and were promised farms in western Zululand covering the identical strip claimed by the Transvaal before the Zulu war, and awarded to the Zulus by a British referee. Demands were then made of Usibepu, which he refused to satisfy. The Usutus with their white allies marched against him, defeated him in battle, June 6th, overran his country, as he had central Zululand, while, like Cetewayo, he fled for refuge to the Reserve. Usibepu appealed to England to restore him to his dominions. Sir Henry Bulwer was in favor of establishing a protectorate over Zululand. Lord Derby defined the policy of the Government to be that of maintaining the Reserve as a refuge for all parties, while interfering in no way with the rest of Zululand. The intervention of the Boers and their acquisition of the long-coveted winter grazing-farms in Zululand, was not considered to be a violation of the convention like their similar encroachments on the western border. A force of about 3,000 British troops, under Gen. Sir Leicester Smyth, was stationed in the Reserve. Many of the Usutu party who were settled in the Reserve, which is the most fertile part of Zululand, now abandoned their farms to join the fortunes of the National party. Usibepu was assigned land near the Natal boundary at Inkandhla. In western Zululand and in Usibepu's territory, about 2,700,000 acres were assigned to the Boer volunteers. In August, after the land settlement (which was contested by Umnyamana and William Grant, Cetewayo's adviser) was made, a Boer Republic in Zululand was definitively established. Gen. Piet Joubert, after resigning the deputy presidency of the South African Republic, was made President of the new republic. All Zululand was declared to be under its protection. Projects for a railroad and a Boer seaport were spoken of. Later in the year, Grant, Umnyamana, and Cetewayo's brothers, who aspired to the throne themselves, were disposed to repudiate the rule of Dinizulu, as being too much under the control of the Boers. In the mean time Usibepu was gathering strength to renew the struggle with the Usutus, and several hundred white volunteers from among the English population of Natal enlisted in his cause.

The South African Republic.—The British suzerainty over the Transvaal was revoked by the convention of 1884. The area of the republic is 110,183 square miles, the white population about 45,000, the native population 775,000. The President is S. J. P. Krüger, elected in 1883 for three years. The Vice-President, Piet Joubert, resigned in October, 1884, on account of differences with respect to the policy in Bechuanaland, and accepted the presidency of the new republic in Zululand. His place was filled by J. C. Bodenstein.

The delegates who concluded the London Convention visited also Holland and Germany, and received marked attentions from the leading men in those countries. They arranged to launch a loan of 15,000,000 guilders for the construction of a railroad to Delagoa Bay, but, when the subscription lists were opened, not enough stock was taken to warrant beginning the works. The new convention with Great Britain was ratified by the Volksraad, August 8th, but a protest was registered against the debt compromise, the veto right on treaties, and the western boundary settlement. The cause of the encroachments in Bechuanaland and Zululand of young Boers is their need of farming-land. The farms in the Transvaal are very large, but the Boers are averse to dividing them. They furnish their sons with live-stock and capital, but oblige them to seek farms in unoccupied land. The race is exceedingly prolific, and therefore extends its settlements rapidly. Gold has been found in promising quantities in several places on the eastern side of the Transvaal within the past two or three years. But the Boers are unwilling to utilize this source of wealth, as also in the case of occasional discoveries of diamonds, which are usually kept secret. They dread the influx of a mining population. In 1883 the Volksraad passed an act forbidding the mining of gold and silver.

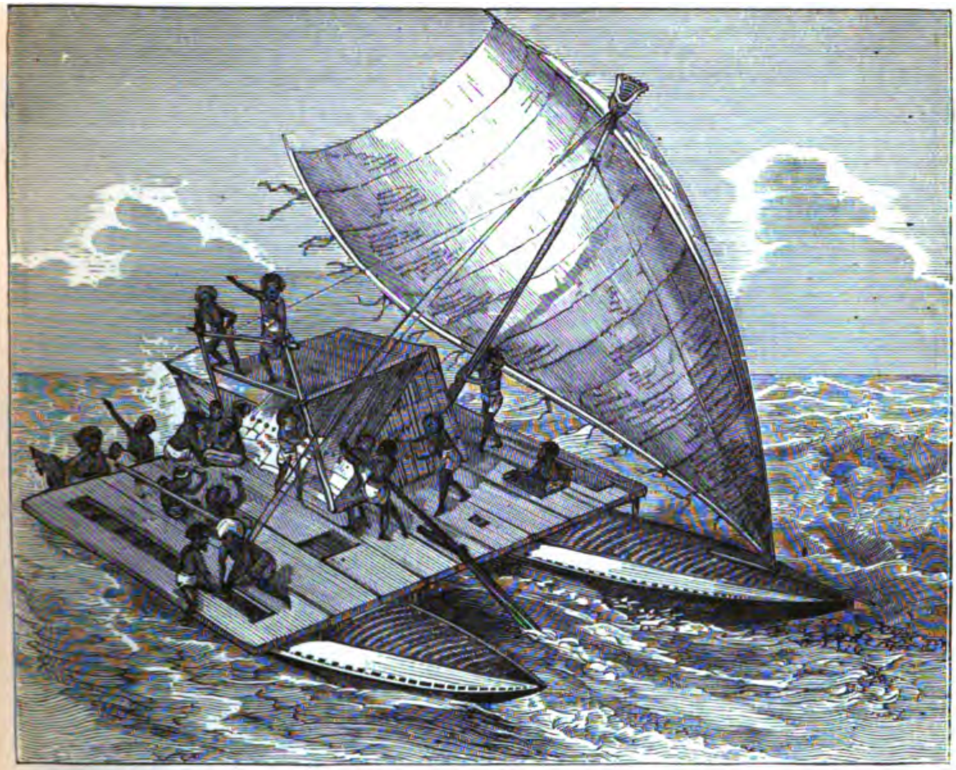
Orange River Free State.—The independent Republic of the Orange River has an area of 41,320 square miles, a white population of 61,022, and a native population of 72,496 souls. Bloemfontein, the capital, contains 2,567 inhabitants. The exports consist almost entirely of wool. Minor exports are hides and ostrich-plumes. The receipts of the treasury in 1883 were £175,854, the expenditures £209,493. The President is Sir John H. Brand, recently knighted by the Queen of England, who was elected in 1879 for the fourth term of five years.

Baralong Troubles.—The Baralong territory within the boundaries of the Free State is secured as a native reserve by treaty with Great Britain. A quarrel between the brothers Moroko and Sepinare, Baralong chiefs, was referred by them to President Brand. Moroko, who was christened Samuel on his conversion to Christianity, was dissatisfied with the award, and went to England to solicit imperial intervention, without success. Upon his return he assailed and captured Thaba Nshu, his brother's capital, in July, 1884. Sepinare was murdered after the battle. President Brand, at the head of five hundred burghers, overcame Samuel's forces, took him and his head-men prisoners, and placed them on trial for murder. The annexation of the native territory was proclaimed.

CATAMARAN, a boat or vessel that has two or more hulls, affording a high degree of stability without the use of ballast. This form of vessel originated among semi-civilized people, whose appliances, skill, and material at hand were not sufficient for the construction of vessels having large carrying power and seaworthiness. The *proa* is the name given to a boat having hulls of unequal size; the larger carrying all the rigging—mast, sail, etc.—and the smaller serving only to give stability. This style of double-hulled boat is used among the East Indies and the South Pacific Islands. The principal hull varies from forty to sixty-five feet in length, and six to seven feet in width, having a framework of bamboo, over which are stretched skins and bark, the seams being paid with pitch. The smaller of the two hulls is generally one to two thirds the length of the larger, usually made of the trunk of a single tree, or built in the same manner as the larger. Between the two hulls is a rude kind of platform covered with basket-work, upon which may be carried a part of the crew, and the material to be transported. The rig of the proa resembles that in use on the Mediterranean, having a short mast amidships, which is stayed to the secondary hull, and carrying one lateen sail, the yard of which is hung in the middle. In tacking, the clew of the sail is sheeted down to the other end of the boat, the yard swinging to adjust itself to the new position. Therefore each end of the boat becomes bow and stern alternately. The outrigger, or secondary hull, is kept always to windward. The Feejee double war-canoe (shown in the second engraving) is a more elaborate piece of work. It has a deck-house for the principal person on board, and over this a platform where the captain stands. The planks composing the platform have flanges on the under side, and through holes in these runs a cord of sinnet, by which they are tied tightly together. The deck is smoothed with an adze and polished so that the seams can hardly be seen. The steering is done with an oar twenty feet long, which the waves sometimes bring round so violently that the handle strikes a man dead. No speed of the proa has been accurately given, but with free wind and smooth sea it should be very fast, perhaps fourteen miles an hour; but in beating to windward their progress must be slow, since they use no keel. The catamaran proper is a rudely constructed craft, formed by lashing together three or more logs, until a sufficient width is obtained to give stability, upon which are secured the mast and sails. The catamaran is used in the lower West Indies, and upon the Spanish Main, and to some extent among the eastern islands of the Indian Ocean. Like the proa, it can obtain a considerable speed with a free wind and smooth sea. It can not be said of either proa or catamaran that they are in the full sense seaworthy. But they make voyages from island to island in comparatively sheltered seas, where quiet weather prevails during the greater part of the year. The written accounts of these vessels are generally meager and scattered; but the subject is treated quite exhaustively in a book published in Paris about thirty-five years ago: "Essai sur la Construction Navale des Peuples Extra Européens; Collection des Navires et Pirogues construits par les Habitants de l'Asie; du Malaise sur le Grand Océan pendant les Voyages autour du Monde de l'Astrolabe, la Favorite, et l'Artémise. Publié par Ordre du Roi, 1847–'48–'49–'50."

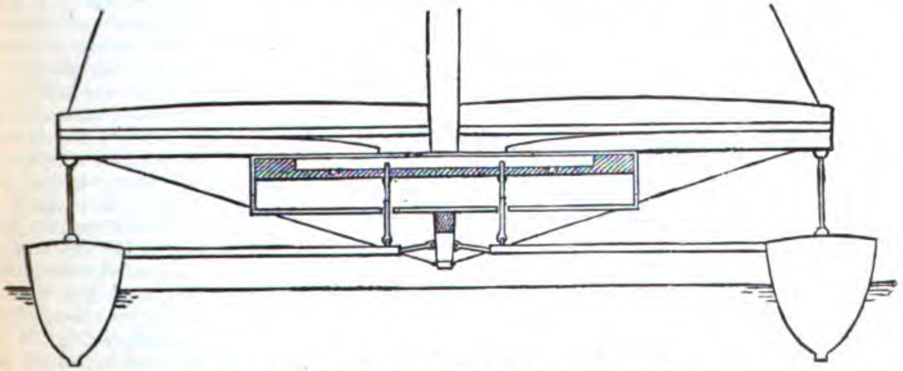
PAPUAN DOUBLE CANOES.

During our centennial year (1876) there sprang up among the yachtsmen of New England and New York quite a furor about the double-hulled boat, or catamaran, as it was called, although it resembled its barbaric ancestor in theory only. In June of that year the Amaryllis appeared in the centennial regatta in New York harbor. She was devised and built by Mr. N. G. Herreshoff, of Bristol, Rhode Island, who, in the following year, perfected his plan for a double-hulled boat, for which letters patent were allowed. His plan was to obtain a maximum of stability with a minimum of weight. In order to place the hulls as far apart as practicable, and to give them perfect independence and freedom of motion in vertical directions, they were united by a system of ball-and-socket joints, through which means each hull could assume a position in conformity to the ever-changing plane of the sea. The car in which the occupants were seated, and the mast and sails, were supported between the hulls by a complex system of truss-work made of steel rods. The proportions found to give the best results were: in length of hull,

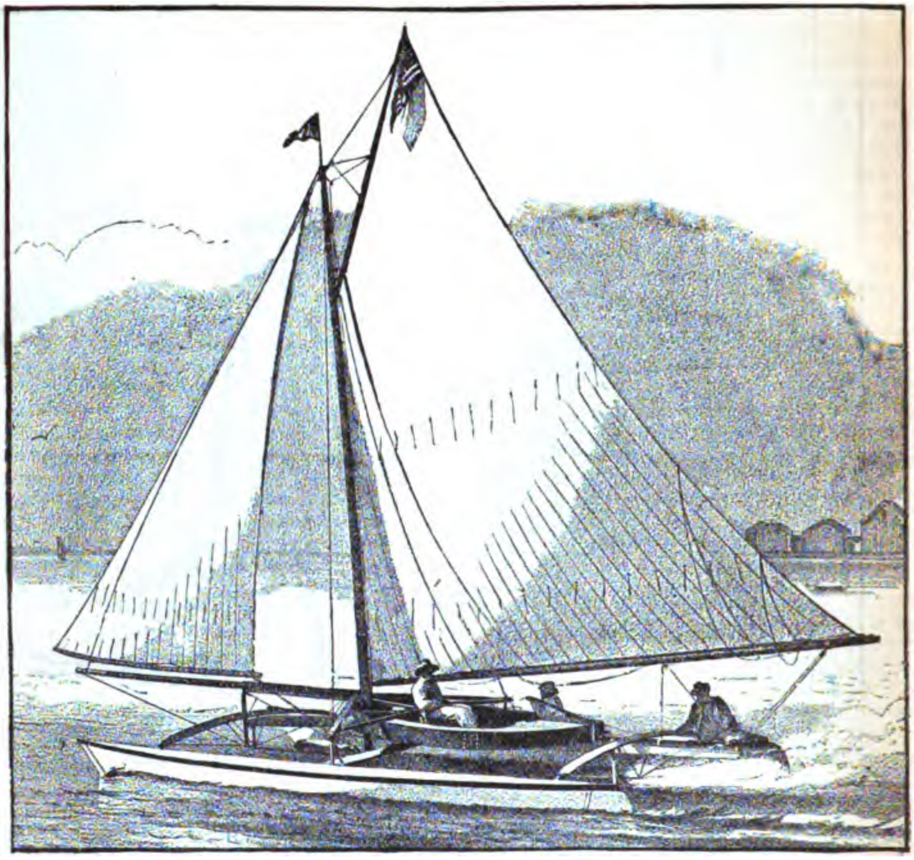


FEEJEE DOUBLE WAR-CANOE.

thirty-three feet; in width and depth, each thirty inches; and placed asunder, sixteen feet. Each hull was furnished with a center-board and a rudder; and in their form and equipments, perfect symmetry was preserved. The rig used was that of a sloop spreading about 900 square feet of sail; the whole structure weighing 3,300 pounds. With this description of double-hulled boat, a very high speed was obtained. With a strong beam wind and smooth sea, twenty miles an hour was made, and seven miles an hour in beating to windward. Since 1876 many catamarans of various forms have been built, most of them having rigid connections, which in smooth water are well enough, but in rough water too much strain is imposed by not allowing each hull to pitch independently of the other. Within a few years, steam has been applied for the propulsion of a double-hulled vessel, both in this country and in England, but in neither case was a greater speed obtained than in ordinary vessels.



CROSS-SECTION OF MODERN CATAMARAN "JOHN GILFIN."



MODERN CATAMARAN "TARANTELLA."

CHEMISTRY. Chemical Philosophy.—The second report of the Committee of the British Association on Chemical Nomenclature, made to the Montreal meeting, contains tables showing what different names the same substance has received, and to what different substances the same name has been given by the chemists of different countries, and illustrating other variations in nomenclature that have prevailed. The report says that the usefulness of any system of nomenclature depends on its permanence. Curiously enough, the tables show that where names have been adopted, supposed to represent in some way the chemical constitution of bodies, they have not, as a rule, been adhered to, the advance of knowledge necessitating a change of opinion, while names which took no account of such change of opinion have endured. As a rule, those names are to be preferred which have shown most vitality, and have led to no ambiguity. Where there are two compounds composed of the same elements, the terminations "ous" and "ic" should be employed. The prefixes "proto" and "deuto," introduced by Thomas Thomson, were intended to mark the compounds in a series, not the number of atoms in a molecule. Where retained, this use only should be made of them. The conclusion of the report is in favor of retaining names of substances in common use rather than to change them for names indicating constitution, which might again be found to require alteration in accordance with some new view on the subject.

The atomic theory has been set in a new light by the researches of Mendelejeff and Lothar Meyer, who, inquiring whether some relations might not exist between the atomic weights of the several elements and their chemical and physical properties, succeeded in tracing an apparent simple relation between the atomic weights and the specific volumes of a considerable number of them, which, although it was not established as to all the elements, incited to further investigation. By various corrections in estimating the atomic weights of a few elements, and the discovery of new substances which fitted into vacant places in the series, the scope of this relation has been extended so as to include fifty-one of the elements, and chemists feel authorized to regard it as a general law.

If all the elements, after hydrogen, with which the law has been verified, are arranged in the order of their atomic weights, they will be found to divide themselves into two kinds of periods or groups: the smaller periods, of which there are two, including seven elements each, and the larger periods, seventeen elements each. The grouping and the distinction of the periods are based upon and justified by the fact that the several members of a single period show no similarity or community of properties and chemical character with one another; but after that period closes, another period begins, the several members of which show an unmistakable parallelism with the corresponding members of the previous period. Arranging the periods in parallel columns, we shall find that the elements standing on the same horizontal line in every case exhibit similarities in chemical and physical character, and would be at once recognized as allied with one another. This is shown by the following table of the periods, which we take from an article by Victor Meyer in the "Deutsche Rundschau":

SMALL PERIODS.				LARGE PERIODS.					
First period.		Second period.		Third period.		Fourth period.		Fifth period.	
Lithium	7	Sodium	23	Potassium	39	Rubidium	85	Cæsium	133
Beryllium	9	Magnesium	24	Calcium	40	Strontium	87	Barium	137
Boron	11	Aluminum	27	Scandium	44	Yttrium	89·6	Lanthanum	138·5
				Titanium	48	Zirconium	90·4	Cerium	141
				Vanadium	51	Niobium	94	Didymium	145
				Chromium	52·5	Molybdenum	96		
				Manganese	55	?			
				Iron	56	Ruthenium	103		
Carbon	12	Silicon	28	Cobalt	59	Rhodium	104		
				Nickel	59	Palladium	106		
				Copper	63	Silver	108		
				Zinc	65	Cadmium	112		
				Gallium	69·9	Indium	113·4		
				?		Tin	117·4		
Nitrogen	14	Phosphorus	31	Arsenic	75	Antimony	120		
Oxygen	16	Sulphur	32	Selenium	79	Tellurium	127		
Fluorine	19	Chlorine	35·4	Bromine	80	Iodine	127		

The only seemingly exceptional case observable here is in the position of carbon and silicon, whose relationship to titanium and zirconium on the one side, and to tin on the other, is indicated by the dotted lines; but it will also be noticed that the symmetry of the table is still perfect. The first line, it will be observed, contains the five alkali metals—lithium, sodium, potassium, rubidium, and cæsium—between which relationships had already been recognized in their constituting a double triad, and which are known as the most electro-positive of all the elements; while the last line contains the four extremely electro-negative halogens—elements exhibiting quite as striking similarities in all properties with one another as those of the first line. Similar curious relations may be detected in the elements represented in the other lines, and a gradation of electro-chemical properties observed down the columns. When the table was first made, there were two more gaps in it than now appear. They were filled by the discovery of scandium by Nilson, and of gallium by Lecoq de Boisbaudran, with atomic weights fitting them to places that were indicated for new elements, and possessed properties, as determined by experiment, which corresponded with those which Mendelejeff had predicted that the elements that should occupy these places should possess.

Investigating the conditions of the color of chemical compounds, Professor Carnelly has found them dependent on three circumstances, the first two of which were previously determined by Ackroyd—1, temperature; 2, the quantity of the electro-negative element present in the binary compound; and 3, the atomic weights of the constituent elements of the compounds. The color passes, or tends to pass, through the chromatic scale—white or colorless, violet, indigo, blue, green, yellow, orange, red, brown, and black—either by rise of temperature, by increase of the quantity of the electro-negative element in a binary compound, or with increase of the atomic weights of the elements A, B, C, etc., in the compounds $A_x R_y$, $B_x R_y$, $C_x R_y$, etc., in which R is any element or group of elements; while A, B, C, etc., are elements belonging to the same sub-group of Mendelejeff's classification of the elements. Only sixteen exceptions, or four per cent., were met in four hundred and twenty-six cases in which the third of these rules was applied.

Prof. Frankland, opening a discussion in the British Association on "Chemical Changes in their Relation to Micro-Organisms," thus defined the distinction between animal and vegetable organisms: A plant is an organism performing synthetic functions, or one in which those functions greatly predominate; it transforms actual into potential energy. An animal is an organism performing analytical functions, or one in which these functions greatly predominate; it transforms potential into actual energy. All micro-organisms appear to belong to the second class. There is no break in the continuity of chemical functions between micro-organisms and the higher forms of animal life. It is true, there are apparently sharp distinctions between them. The enormous fecundity of micro-organisms and their tremendous appetites seem to separate them from the higher forms of animals, but this distinction is only comparative. It must be borne in mind that an animal like a sheep, for example, converts much of its food into carbonic acid, hippuric acid, and water, thus utilizing the whole of the potential energy, while the micro-organism, as a rule, utilizes only a small portion. Those micro-organisms which have been studied produce, like the higher animals, perfectly definite chemical changes. Principal Dallinger remarked, in reference to the attempted distinction between the lower animal and vegetable forms, that in following out the life-history of certain monads he had used a nutritive fluid containing no albuminoid substances, but only mineral salts and tartrate of ammonium, and that organisms classed as animals by Prof. Huxley were found to live in that mineral fluid. Bacteria of forms which can not be distinguished by the microscope have very different physiological functions. They can be modified physiologically, but not at all readily morphologically. By a slow change it is possible completely to reverse the conditions of the environment of the bacterium without changing its form.

In a special discussion in the British Association on "The Constitution of the Elements," Prof. Dewar remarked that Deville has shown, by his researches on dissociation, that in compound substances there is an equilibrium between decomposition and recomposition, this balanced relation changing with the temperature. The breaking up of the iodine molecule, effected by Victor Meyer, is a decomposition of elementary matter, but, owing to the rapid recomposition, there seems no hope of isolating atomic iodine at low temperatures. The vapors of potassium and sodium have different densities at different temperatures; probably, also, their molecules consist of two atoms at lower and of one atom at higher temperatures. More exact determinations are needed of those substances which exhibit a variable vapor density. The evidence afforded by spectral analysis proves that oxygen and nitrogen have two spectra, and therefore probably different molecules at different temperatures. Hydrogen has a complicated spectrum under certain conditions. Mr. Lockyer has proved that the identity of certain "basic" lines of different elements, such as iron and calcium, is not due to impurity, but the greater dispersion of more powerful instruments has shown that the coincidence of these lines is only apparent, and not absolute. The differences observed in some of the spectral lines of a single element in the sun might be accounted for not by the decomposition of the "element" into simpler matter, but by great differences of level in the luminous vapor. Prout's hypothesis, that the atomic weights of the other elements are multiples of that of hydrogen, has no basis in experimental fact. Prof. Wolcott Gibbs remarked upon the probability that what is generally regarded as a simple molecule, such as sodium chloride, consists in the solid state of several hundreds of atoms, and that the salt undergoes, in solution, a kind of molecular dissociation. Very complex molecules, such as those acids he had prepared containing many molecules of the oxides of molybdenum, vanadium, barium, etc., are probably derived by substitution from what are called simple molecules, but which are really composed of a great number of atoms.

Chemical Physics.—Troost has recently shown that oxygen gas is capable of passing through silver at a red heat, in the same manner as hydrogen behaves with platinum and iron. A tube of pure silver was inclosed in a platinum cylinder, and the whole heated in the vapor of boiling cadmium. On exhausting the silver tube with a Sprengel pump, and passing oxygen into the space around it, the gas was found to enter at a rate corresponding to 1·7 litre per hour for each square metre of surface exposed. On passing air instead of oxygen into the outer chamber, oxygen with only a trace of nitrogen was found in the interior, but the rate of transfusion was diminished nearly one half. Instead of exhausting the tube, it was found necessary only to pass through it slowly a stream of some other gas, such as carbon dioxide; but this considerably lessened the rate of transfusion. The oxygen was replaced by other gases, such as carbon dioxide, carbon monoxide, and nitrogen, but they passed through the walls of the tube with extreme slowness. The author suggests that this property of silver may some time be utilized to extract oxygen direct from the atmosphere.

W. Spring has investigated the cause of the different specific gravities of one and the same metal according as it has been cast, rolled, drawn into wire, or hammered; whether the difference observed proves a real condensation of the matter under the action of pressure, or is merely due to the expulsion by pressure of gases which have been occluded when the ingot was cast. According to well-known researches, metals, such as platinum, gold, silver, and copper, which have been proved to occlude gases on fusion, and to let them escape incompletely on solidification, are precisely those which are most increased in their specific gravity by pressure. He has submitted to pressures of about 20,000 atmospheres, metals which possess this property either not at all or to a very trifling extent, and he finds that though a first pressure produces a slight permanent increase of density, its repetition makes little difference. Hence the density of solids, like that of liquids, is only really modified by temperature. Pressure effects no permanent condensation of solid bodies, except as they are capable of assuming an allotropic condition of greater density. The limit of elasticity of a solid body is the critical moment when the matter begins to flow under the action of the pressure to which it is submitted, just as, for example, ice at or below 0° C. may be liquefied by strong pressure. A brittle body is simply one which does not possess the property of flowing under the action of pressure.

M. Alexeyeff, a Russian, regarding gravitation, cohesion, and chemical affinity as three degrees of the same force, asks which of the last two is manifested in solutions, and declares in favor of cohesion. The simplest cases of solutions are, in fact, those where there is no chemical affinity between the bodies dissolving and dissolved. The solution of gases in solid bodies is quite analogous to imbibition by solids of liquids, and the much greater solubility of gases in liquids may be easily explained by the easier penetration of gases between the molecules of a liquid. The law of solubility given by Dalton is in perfect agreement with the supposition that the dissolved gases maintain their own aggregation when dissolved. The same is true with regard to solutions in liquids.

New Substances.—Under the title of "Complex Inorganic Acids," Prof. Wolcott Gibbs refers to a class of compounds of molybdic, tungstic, and vanadic acids with other mineral acids, giving rise to substances of very complicated atomic constitution. At least ten series of phospho-tungstates have been described, and the phospho-molybdates are equally numerous and have a similar range. Combining other acids, we may have a great variety of these compounds; and many of the salts are very beautiful. Compounds have also been prepared in which the methyl, ethyl, and phenyl derivatives of phosphorous and hypophosphorous acids occur. As an instance of the extreme complexity of some of these compound acids, Prof. Gibbs gave the body $60\ WO_3$, $3\ P_2O_5$, V_2O_5, VO_2, $18\ BaO, +150\ Aq.$, which has the enormous molecular weight of 20,666.

From the analogy in constitution between phthalic and ortho-sulpho-benzoic acids, Prof. Ira Remsen inferred that the latter might act upon phenols in the same way that the former does, and that thus compounds analogous to the phthaleins might be obtained. Experiment confirmed this. A mixture of potassium ortho-sulpho-benzoate and resorcin heated with sulphuric acid and treated with caustic soda, and similar processes with derivative and substitution products of sulpho-benzoic acid, gave rise to a series of products for which the designation of sulphon-phthaleins is proposed.

M. Struve, of Tiflis, in the "Journal" of the Berlin Chemical Society, describes a form of fermented milk, called kephir, which occupies a similar position in the dietary of the northern Caucasus with koumiss in southeastern Russia. It is prepared by fermenting either sheep's, cow's, or goat's milk in leathern bottles with what are called kephir-grains, a ferment the origin of which is unknown. The milk becomes very much changed during the process. The kephir-grains are also reproduced, but are removed after a certain stage of fermentation has been reached, and may be preserved by drying in the sun, to be used again in promoting fermentation. An analysis of the grains, dried at 300° C., gives:

Water	11·21
Fats	3·99
Soluble peptone substances.:	10·98
Proteids soluble in ammonia	10·32
Proteids soluble in potash	30·99
Insoluble	33·11

The 33·11 per cent. of insoluble matter seems to be the only active part of the kephir-grains; and its activity is attributed to *Saccharomyces mycoderma.*

W. Kühne and R. H. Chittenden, following up an idea that was suggested to them by some of the reactions of hemialbumose that that substance might be a mixture, have obtained from it, by treatment with sodium chloride and acids, four new forms of albumose, which they designate as follows:

No. I. Precipitated by excess of sodium chloride, soluble in cold and hot water: *protalbumose.*

No. II. Precipitated by excess of sodium chloride, insoluble in cold and boiling water; but, on the other hand, soluble both in strong and dilute solutions of sodium chloride: *deuteroalbumose.*

No. III. Similar to No. II, but insoluble in solutions of sodium chloride: *heteroalbumose.*

No. IV. Not precipitated by excess of sodium chloride, but precipitated by sodium chloride and acids; soluble in water: *dysalbumose.*

The "hemi" of the name is retained in each case. While these several forms of albumose differ somewhat in their general properties, the percentage composition of the various products shows a remarkable degree of uniformity. The existence of these substances and the differences in their properties throw some light on the facts, previously determined, concerning "soluble" and "insoluble" albumose, and that of the contradiction regarding the precipitability of albumose in part by sodium chloride alone, and in part only by the united action of an acid. What was previously designated "insoluble" hemialbumose consists of heteroalbumose, soluble only in boiling dilute sodium chloride, which, after once being boiled, separates in great part on cooling. "Soluble" hemialbumose corresponds to both protalbumose and deuteroalbumose, or to a mixture of both those bodies. When protalbumose is obtained free from deuteroalbumose, it is at once evident, from the fact that the latter can not be precipitated by sodium chloride alone; but since we have become familiar with heteroalbumose, it is also clear that in the majority of cases the precipitate obtained by simple addition of sodium chloride can not be pure protalbumose, as there remains mixed with it a portion of heteroalbumose, which can be separated by dialysis. The earlier statements regarding the turbidity and precipitation of hemialbumose by neutralization, as also its precipitation, after the manner of albuminates, from solutions originally non-precipitable after their solutions have been treated with caustic alkalies or strong acids, find their explanation in the properties of heteroalbumose and dysalbumose. Such appearances can be observed in the case of protalbumose and dysalbumose only when extraordinarily concentrated solutions, or solutions rich in salt, are used.

Meyer has recently separated from benzene oils *thiophen*, a substance the composition of which is represented by the formula C_4H_4S. It presents a close analogy in general reactions with benzene, and reacts with diketones to form highly colored compounds.

New Processes.—Prof. H. W. Vogel reported to the Physical Society in May on the final practical results of the researches which he has conducted for many years on the means of photographing colored objects in their natural shades. Sensitive plates are known to be affected only by the more refrangible rays, while the less refrangible rays remain inoperative. Hence quite unnatural pictures are obtained of colored objects, for in them blue, even in the darkest shades, appears as white; and yellow and red as black. In view of the fact that the sensitive collodion is affected only by such rays as are absorbed by it, Prof. Vogel has been for years occupied with the attempt to make his plate sensitive to less refrangible rays by alloying the silver coating with a substance capable of absorbing those rays. The experiment was successful so far as the natural colors were concerned, and the plates prepared according to the theory invariably produced an effect in the solar spectrum wherever the absorption bands of the alloy were found; but it was impossible to obtain like results with artificial colors. Many coloring substances which, when blended with the collodion, beautifully reproduced the yellow of the solar spectrum, were ineffective against the artificial and fainter yellow of painters. Prof. Vogel continued his attempts as new and brighter colors were discovered, till he succeeded in obtaining in eosine and its derivatives coloring substances possessing hardly more than a broad absorption band in the yellow, which, when mixed in due proportion with the dry gelatine plates, gave the yellow of the colored objects quite clear in the photograph; but the blue was still always brighter. Finally, inserting a yellow glass between the object and the camera, he secured a partial absorption of the blue rays while the yellow was left unimpaired, and obtained photographs in which the blue as well as the green and yellow, and partly even the red parts of the colored objects, presented the vivid effects of the original.

A modification of Dumas's method for the quantitative estimation of nitrogen is suggested by Mr. Stillingfleet Johnson. Taking a long combustion-tube, he draws out one extremity into the form of an S. Freshly reduced metallic copper is packed into the front of the tube; behind this is a layer of cupric oxide; and at the extreme back of the tube a porcelain boat is introduced, containing in the front half the substance to be analyzed, while the remainder is filled with fused and powdered potassium chlorate. The air having been expelled from the cold apparatus by a stream of carbonic dioxide, a low red heat is applied to the whole of the front part of the tube, to within an inch of the boat containing the substance, while carbonic dioxide still continues to be passed over. When complete expulsion of nitrogen from the ignited copper oxide has been insured, the receiving apparatus for the substance under analysis is arranged, and the heat is gradually extended—the stream of carbonic dioxide still passing—backward toward the porcelain boat, care being taken not yet to disturb the potassium chlorate. As soon as the evolution of nitrogen from the destructive distillation of the substance to be analyzed has ceased, the heat is allowed to extend to the potassium chlorate, when evolution of oxygen gas ensues. The remainder of the analysis is simple.

M. S. Wroblewski has shown that a fall of temperature of —186° C. can be obtained by the expansion of liquid oxygen. In continuing his work, he discovered that a hydrogen thermometer of small size could not be depended upon, and therefore adopted a thermo-electrical apparatus, the inductions of which were afterward compared with a large hydrogen thermometer. By this method of working at the low temperature of —200° C., the $\frac{1}{400000}$ of a volt could be measured, corresponding with a change of ¼ of a degree in temperature. With this apparatus the author has been enabled to measure the boiling-point of oxygen, of air, of nitrogen, and of carbonic oxide under the ordinary pressure; these gases having been obtained as liquids by leading them from a metallic receiver, where they are already compressed to 100 atmospheres, into a glass tube closed at one end and immersed in liquid oxygen. On the expansion of the oxygen, the compressed gas is liquefied. When the expansion is accomplished, the connection of the tube with the receiver is broken, and it is brought to the atmospheric pressure; the liquid gas boils at a temperature corresponding to this pressure. M. Wroblewski obtains the following results:

	Degs. C.
Oxygen, boiling-point	—184
Air, boiling-point	—192·2
Nitrogen, boiling-point	—193·1
Carbonic oxide, boiling-point	—193

On evaporating these gases *in vacuo*, a temperature of —200° C. can be obtained. It results from the above that ordinary air promises to be the refrigerator of the future. It does not have to be prepared, only compressed to the point of liquefaction, and then applied.

The ordinary process for the extraction of sulphur at the mines in Sicily and Italy by roasting in kilns, or *calcaroni*, is wasteful of sulphur, and causes poisoning of the air by noxious vapors to such an extent that the Government has limited the "burning" of the ore to particular months. A new process has been put in practice by MM. de la Tour and Dubreil in which the ore is heated with solution of chloride of calcium boiling at 120° C., when the sulphur melts gradually, and is drawn off from the heating-tank directly into molds. In the apparatus first employed, certain of the ores were completely disintegrated. Modifications have been made in it, by which ores of all kinds, even the fine powder at the mines, are economically treated. The new method presents great advantages over the older methods, in that it allows the extraction of the greater part of the sulphur from ores of every kind, at a minimum cost for fuel; that by it the extraction is effected regularly under protection from atmospheric influences; that the work can be carried on throughout the year, as no sulphurous-acid fumes are formed; and that it permits the treatment of the ores according to the demands of the trade.

H. A. Gadsden, of London, has patented a process for the manufacture of aluminum, the new feature of which consists in bringing the aluminum chloride and metallic sodium together in the form of vapors. The aluminum chloride is formed by treating corundum or bauxite with fluoride of sodium or potassium, and passing chlorine through the mixture of the pulverized roasted mass with charcoal.

M. Weldon proposes to obtain aluminum by fusing cryolite with calcium chloride, or some other non-metallic chloride or sulphide and reducing the aluminum chloride or sulphide with metallic manganese.

By another process H. Miwerth mixes ferro-silicon with aluminum fluoride in molecular proportions and heats the mixture to fusion. Double decomposition takes place, silicon fluoride is formed which volatilizes, and an alloy of iron and aluminum remains. Aluminum bronze may be obtained directly by fusing the iron-aluminum alloy with copper. The aluminum unites with the copper, and the iron remains with but a very small quantity of aluminum. Pure aluminum is obtained by heating aluminum chloride with silicon.

C. C. Hutchinson disposes of sewage-sludge, or the slimy mud deposited from sewage, by filtration in filter-presses of special construction. The press-cakes thus obtained still contain about 50 per cent. of water, are inodorous, and dry rapidly down to about 20 per cent. of water. A mixture of equal parts of aluminum and calcium sulphates is used as a precipitant before filtering the sludge. The press-cake is fully equal to farm-yard manure as a fertilizer. At Coventry, with about 45,000 inhabitants, 456 tons of wet sludge are treated daily, at a cost of sixpence per ton, or of half a crown per ton for the pressed cake.

H. R. Proctor modifies Loewenthal's method for the estimation of tannin, by adding a small amount of pure kaolin to the solution containing the tannate of gelatine in suspension, with vigorous agitation. Thus treated, the precipitate filters readily, without tedious waiting. The author prefers to express the percentage of tannic acid in terms of oxalic acid, the molecular weight of which (63) is not far from that of quercitannic acid (62·36).

An improved process has been devised by C. L. Bloxam, for the estimation of manganese in cast-iron and spiegeleisen by precipitating the iron as ferric phosphate in presence of acetic acid, which retains the manganese dissolved. The metal is treated with hydrochloric acid, ammonia, acetic acid, and sodium phosphate, for the precipitation of the iron, and the manganese is afterward precipitated as the crystalline, very insoluble ammonio-phosphate.

A new method for the volumetric estimate of the nitrites, based upon the formation of diazo-benzine from aniline by the action of nitrous acid, has been devised by A. G. Green and S. Rideal. The least excess of nitrous acid remaining after the reaction is complete, is indicated on adding starch and potassic iodide. The estimate is accurate to less than 0·1 per cent. The authors represent that, in addition to its greater delicacy, their method can be used in many cases where, owing to the presence of oxidizable substances, the permanganate process is inapplicable.

A. Petit describes a new process for the determination of cinchonas, by adding ammonia to the ethereal solution of the powdered bark, with alcohol, treating with sulphuric acid, and precipitating the alkaloids with caustic soda. The acid solution of the alkaloids is again treated with ether and ammonia for the removal of those that are soluble in ether, after which sulphuric acid is again added, and the quinine sulphate is made, by saturating with ammonia and boiling, to separate in the form of fine crystalline needles.

Industrial Chemistry.—In a report on glucose, made by a committee of the National Academy of Sciences, for the Commissioner of Internal Revenue, besides the mode of manufacture of starch-sugar, and the nature of the products obtained, attention is given to the effect of those products on health. So far as the products made from corn-starch are concerned, no experiments had been made with reference to their effects upon the system. The pure chemical substances, dextrose, maltose, and dextrine, derived from the manufacture, are certainly not injurious, but there may be impurities in the commercial product, or, when fermentation of the commercial products takes place, substances may be developed, or substances may be left unfermented, that are of an injurious character. Experiments have been made in Germany with dextrose from potato-starch that gave opposite results. Schmitz and Nessler found the fermented products of potato-sugar to cause sickness in cats and dogs, and in some cases in men. Freiherr von Mering, on the other hand, experimented in much the same way that Schmitz and Nessler had, and concluded that the unfermentable residues from potato-sugar were not at all objectionable.

Dr. J. R. Duggan, of Johns Hopkins University, has performed special experiments on the fermented products of corn-starch sugar, which he continued through two months, swallowing frequent large doses of various extracts. During this time he felt nothing that indicated that the extracts contained anything injurious.

As regards the action of sunlight or diffused daylight upon colors fixed in dyeing, M. Decaux has proved by a long series of comparative experiments that the shades dyed upon wool in the vat, with Prussian blue, cochineal, madder, weld, and fustic, are much more permanent than those obtained with Nicholson blue, magenta, jaune d'or, and picric acid. Four of the coal-tar colors differ from the rest of their class as regards stability. They are the ponceau, called naphthol carmine, orange No. 2, chrysoine, and artificial alizarin. Colors for painting in water and oils are divided into the absolutely permanent, the moderately permanent, and the fugitive. If used with water, all the most beautiful reds, carmine, carmine-lake, most madder-lakes, and vermilion, fall under the fugitive class. If mixed with oil, the madder takes rank as moderately permanent. The action of the arc electric light is similar to that of the sun, but it has only one fourth of the power.

Several instances have been reported of the decomposition of explosive gelatine on keeping, or after exposure to moderate temperatures. Gen. H. L. Abbott mentions the decay during the winter and spring of 1881–'82 of the samples of this substance that remained on hand after the experiments of the former year in submarine mines, the gelatine separating into cellulose and free nitro-glycerine, with copious evolutions of nitrous fumes. Mr. Charles E. Munroe has observed the decomposition of a package of camphorated explosive gelatine in a room of fairly even temperature and dryness, after more than a year's exposure. It was observed to be giving off nitrous fumes; the outside of the paper containing it was covered with a congeries of fine crystals, while the odor of camphor was still quite strong. The mass was friable in water, and disintegrated after a short immersion. The camphor odor shortly disappeared, the water became of a straw-color, and showed traces of nitrous, but no nitric acid. Oxalic acid crystallized out in quantity on evaporation of the filtered liquid, and a sugar-like mass, giving the glucose reaction with Fehling's solution, was obtained on evaporation of the "mother-liquor." The paraffine was regained unchanged, and the paper was recovered in a flocculent condition, with the color bleached. No glycerine, nitro-glycerine, or gun-cotton was detected.

Experiments by E. J. Mills and A. G. Rennie with purified Cashmere wool and a 0·02-per-cent. solution of rosaniline acetate showed that the maximum dyeing effect was produced at the temperature of 31·1° C., the minimum of effects being at —1·46° and +81·15°. Using the rosaniline salt in excess, the maximum deposition of color occurred at 39° C., and the minima at about 0° and at 82°. With mauveine the maximum was at about 49° C., and the minimum was calculated on one side as —23·8° C., while on the other side it was not reached at 85° C., though the diminution was marked. The conclusion was reached that where an aniline color is susceptible of dissociation there is positive disadvantage in using high temperatures in the dye-bath.

Arthur H. Elliott, of the Columbia College School of Mines, has made some satisfactory experiments in the derivation of anthracene from water-gas tar. Two series of experiments made it evident that this tar is particularly rich in anthracene, the second series giving 2·63 as the total percentage in the original tar. This is equivalent to four or five times the amount contained in ordinary coal-tar, that being given at 0·3 to 0·4 per cent. These experiments assume importance in view of the facts that anthracene is the most valuable of the higher members of the aromatic hydrocarbons, on account of its use in the production of alizarine, and that water-gas is destined to be used more extensively in the United States than it now is.

A. Remont has described a process for the determination of the wool, silk, and cotton in tissues. Four portions of the cloth are taken, of equal weight. One part is put aside, and the other three parts are boiled in hydrochloric acid for the removal of the dyes and weighting matters. One of the boiled swatches is laid aside, and the other two are exposed in a boiling solution of basic zinc chloride, drained, washed, and dried, for the removal of the silk. One of these two swatches is then laid aside, while the other is boiled for a quarter of an hour in soda-lye. All the four swatches are then heated for fifteen minutes in distilled water, pressed, and allowed to lie in the same room in which they had been previously kept. The next day they are weighed. The difference in the weight of the swatch first laid aside and that of the second swatch represents the dressing, that between the second and the third gives the silk, and the weight of the fourth swatch represents approximately the vegetable fiber present, although it has suffered some loss—amounting possibly in the case of cotton to 5 per cent.—from the action of the soda. Multiplying the figures by 50, we obtain the percentage of dressing, silk, and vegetable fiber. The remainder is the wool.

A. Livache uses manganese to accelerate the drying of oils. He finds that while an ordinary drying oil containing lead dries in twenty-four hours, a similar oil containing manganese dries under the same conditions in from five to six hours. Copper, zinc, cobalt, nickel, iron, chrome, etc., prolong the time of drying to from thirty-six to forty-eight hours. In practice M. Livache takes an ordinary lead-oil, adds dry manganese sulphate in fine powder, and agitates for some time in the cold. The manganese is entirely substituted for the lead, and the oil obtained, free from dregs by simple decantation, possesses an extreme drying power.

Domestic Chemistry.—The water supplied to Cwmfelin, Wales, after being carried half a mile through a galvanized iron pipe, was found to have absorbed 6·41 grains of zinc per gallon, the water at the spring being free from that element. Mr. C. W. Heaton has confirmed the analysis by an experiment that showed water capable, with the aid of oxygen and carbonic acid, of dissolving zinc immersed in it. The subject of the solution of zinc by water in contact with it, was discussed by Thomas Stevenson in the "Guy's Hospital Reports for 1872." Dr. Stevenson there stated that, having been employed to arrange the water-supply for a private house, he ordered the rain-water from the slate-covered premises to be brought in through iron pipes. Contrary to his instructions, galvanized pipes were used, and the water that came through them was observed, after several weeks, to be turbid and milky, and was found to contain a notable quantity of zinc in suspension, and some in solution. It is pointed out, in the "Sixth Report of the Rivers' Pollution Commission," that certain polluted, shallow well-waters, containing much dissolved oxygen, and but little carbonic acid, possess the property of acting continuously on both bright and tarnished lead, and that, when galvanized iron pipes are used, the water is impregnated with zinc instead of lead. The water of Loch Katrine, which acts on both bright and tarnished lead, also attacks galvanized iron. The presence of zinc in water is easily recognizable by the thin white film which forms on the surface of the water when the latter is exposed to the air. Dr. Stevenson remarks that zinc in solution in potable waters is best detected by the addition of potassic ferrocyanide to the clear water after acidulation with hydrochloric acid. A whitish cloud will immediately form if zinc be present.

F. P. Venables, Ph. D., of the University of North Carolina, relates an instance of zinc-impregnated water which came under his observation. The water was brought by galvanized iron pipes, and stored in a zinc-lined tank painted with white-lead. It became somewhat turbid and metallic-tasting, and its use for drinking purposes was discontinued. On analysis, the water in the tank was found to contain 4·48 grains of zinc carbonate per gallon, with a trace of iron, and no lead. Water from the pipe gave 4·29 grains of zinc carbonate per gallon, and a trace of iron.

Seeking to determine the conditions under which the soap-test for hard water fails, Mr. Herbert Jackson found that the presence in solution of the salts of either calcium or magnesium, in quantities sufficient to give 23° of hardness on Clark's scale, invalidated the test. In the case of waters containing the salts of both metals, if the salts of magnesium were in solution in quantities sufficient to give more than 10° of hardness, no evidence could be obtained of their presence so long as the salts of calcium in the same water exceeded 6°; in such a case, a perfect and permanent lather was produced when soap had been added equivalent to 7° of hardness. Reliable results were obtained on diluting the water so as to reduce the proportions of the salts below those stated above. When the water was heated to 70° C., a complete reaction was caused between the soap and the salts. With one of the constituents of the soap, sodium oleate, perfectly trustworthy results were obtained in very hard waters without either diluting or heating.

The water of the river Oder above Breslau, in its course through the city, and for fourteen kilometres, or about ten miles, below the town, has been examined by Franz Hulna to determine the effect of sewage upon its purity. From the point where the water-supply of Breslau is pumped up, to a little above the town, the water undergoes a slight but appreciable deterioration, but after filtration is quite suitable for domestic uses. In passing through the city, a continuous change for the worse takes place, which is manifested by the increase of oxidizable matter and of chlorine, and by a hundred-fold augmentation of ammonia and albuminoid ammonia. Microscopic examination disclosed the abundant presence of organisms of putrefaction. Farther down was observed a gradual process of self-purification by contact with oxygen, along with the coöperation of vegetable and animal life in the stream. Ten miles below the city the influence of sewage could not be detected either by chemical or microscopic examination.

According to the statements of Prof. Pettenkofer, at the Hygienic Congress in Berlin, the poisonous effects produced by coal-gas are dependent upon the presence of carbonic oxide in the proportion of about ten per cent., while the other constituents of the gas, although irrespirable, do not act as direct poisons. The danger in breathing the gas does not depend so much upon the duration of the exposure to a mixture of air and carbonic oxide, as upon the amount of the latter contained in the air. Air containing only $\frac{5}{10000}$ of carbonic oxide can be breathed for a considerable time without injury to health; a proportion of seven or eight to 10,000 causes appreciable discomfort; of twenty to 10,000, difficulty of breathing, weakness, and uncertainty of gait; a proportion of twice that ratio leads to stupefaction; and higher proportions to extreme and fatal effects referable to the nervous system. Gas-sickness increases in the winter months, largely, probably, because the rooms are closed and the gas is drawn into them through the artificial heating. Variations in the degree of cold between one night and another account for corresponding differences in the gravity of the poisoning effects produced. Gas filtered through the soil from the mains may be quite odorless until it has collected in large amount, and herein lies the danger to dwellers in the basement. The remedy, when symptoms (headache) of gas-poisoning occur, is to open the windows.

Atomic Weights.—Thomas Hilditch has called attention to possible sources of error in the determination of the atomic weight of oxygen, arising from the fact that the hydrogen used in the experiments has been obtained by the solution of impure zinc in sulphuric acid, and is liable therefore to contain foreign admixtures. Among the substances with which it may be infected are hydrides of carbon, sulphur, antimony, and arsenic, sulphur dioxide, carbon dioxide, oxides of nitrogen, free oxygen, nitrogen, and water. He suggests that, in future determinations of oxygen, the hydrogen should be derived from the electrolysis of water.

From the closely coördinate results of seven experiments with cerium chloride and silver nitrate, H. Robinson has determined the atomic weight of cerium at 140·2598, silver being 107·93.

A few years ago Nilson and Petterssen, concluded from their experiments on the specific heat of glucinum, or beryllium, that the atomic weight of that element is 13·65, and not 9·1, as had generally been assumed. This was challenged, and Nilson reëxamined the question, and claimed to have confirmed their former result. Recently, however, they have gone into the subject again, and now announce that their former conclusion was wrong, and that the old figure of 9·1 is correct.

Prof. Cleve has described methods for extracting and purifying the earth *samaria*. From determinations of the amount of sulphate obtained from quantities of this oxide, he calculates the atomic weight of the metal *samarium* as 150. Various salts of *samarium* are described. The metal is closely allied to didymium.

Bougartz has made a series of new determinations of the atomic weight of antimony by a method proposed by Classen, which consists in oxidizing by means of hydrogen peroxide the hydrogen sulphide set free from antimonious sulphide by hydrogen chloride. The results of twelve experiments gave a mean of 120·193; a number which confirms the values heretofore obtained by Schneider and by Cooke.

Friedel, having obtained some exceptionally pure and white specimens of diamond, very free from ash, has submitted them to combustion in a current of oxygen, by aid of a carefully adjusted apparatus, with a view of determining the atomic weight of carbon. In the first of two combustions, 0·4705 gramme of clear white Cape diamonds gave 1·7208 gramme of carbon dioxide. Since the ash weighed 0·0007 gramme, the carbon consumed weighed 0·4698 gramme, and a loss of 0·0021 gramme carbon was shown. Considering that of oxygen as 16, this experiment gives 12·017 as the atomic weight of carbon. In a second determination 12·007 was the figure obtained.

The following recent redeterminations of atomic weights have been published: By Thorpe, titanium = 48; by Baubigny, niobium = 58·75; by same, copper = 63·46; by Brauner, tellurium = 125; by Löwe, bismuth = 207·33; and by Marignac, bismuth = 208·16; manganese = 55·07; zinc = 65·27, magnesium = 24·37.

Analytic Chemistry.—Prof. Dittmar has published a report on the composition of ocean-water as determined by the analyses of specimens collected during the Challenger Expedition from various parts of the oceans and from different depths. It embodies the results of seventy-seven complete analyses that were made. Leaving out of view those of the thirty elements known to exist in sea-water which are present only in too minute quantity to be determined in small samples, attention was given to the accurate estimation of the chlorine, sulphuric acid, soda, potash, lime, and magnesia. The principle previously declared by Forchhammer, that the percentage composition of the salts of sea-water is the same in all parts of the ocean, was confirmed, and was extended to all depths except in the case of lime, the proportion of which increases with the depth. The determination of the amount of carbonic acid was attended with difficulties, but the observations gave the three results that—1. Free carbonic acid in sea-water is the exception; as a rule the carbonic acid is less than the proportion corresponding to bicarbonate. 2. In surface waters the proportion of carbonic acid increases when the temperature falls, and *vice versa*. 3. Within equal ranges of temperature it seems to be lower in the surface water of the Pacific than it is in the surface water of the Atlantic Ocean.

In regard to alkalinity, the analyses show that in sea-water salts there is a distinct preponderance of base over fixed acid. The alkalinity of bottom waters was found to be distinctly greater than that of those from the surface, and this increase was exactly proportional to the larger quantity of lime present in the former. The determination of the amounts of oxygen and nitrogen held in absorption were not wholly satisfactory, and Prof. Dittmar gives his results only tentatively. The amount of air which ought theoretically to be absorbed by sea-water of the temperature and at the pressure at which each sample was collected was first calculated, and then, from the actual amount of nitrogen found, the quantity of oxygen which should be associated with it was arrived at. The quantities of air found in solution were usually in defect of calculation, as might be expected when it is recollected that the water of the ocean is always in motion, the temperature and pressure to which it is exposed being very different at different places; and the fact that absorptiometric exchange had not gone far enough to reproduce equilibrium would account for the few cases in which the dissolved gases exceeded the amount calculated.

W. N. Hartley has made experiments in the application of spectrum photography to quantitative analysis in the case of a number of metals. The sensitiveness of the spectrum reaction, he reports, is practically unlimited when applied to magnesium compounds dissolved in water. With a given length of spark, $\frac{1}{100000000}$ of a milligramme of that metal could easily be detected. When the strength of the spark was greatly increased, but the striking distance between the electrodes was left unaltered, the sensitiveness was increased ten thousand fold. One part of magnesium was detected in 10,000,000,000 parts of water. The spectrum reaction of arsenic is the weakest, and those of antimony and tellurium are weak, while that of bismuth is not strong. Evidence is afforded in the case of the aluminum spectrum that it is not invariably the longest or strongest line that is most persistent. Even the longest lines are shortened by great dilution of the solutions, but there is a pair of lines in the spectrum of copper which become greatly attenuated, yet remain long lines till they disappear.

Alfred Smetham has reported the results of an analysis of ensilage taken from the lower part of a silo about nine feet in depth, some ten days after the grass was put in. Samples were taken from between one foot and one foot six inches, and from between one foot six inches and two feet from the bottom. A sample from the bottom layer was also examined, to determine to what extent the excess of water had influenced the quality and the nature of the fermentation. An increase of mineral matters was remarked, which was due to the salt that had been used in preparing the silo. A loss of about six per cent. of nitrogenous compounds was observed as compared with the grass, but a slight gain in nitrogen as compared with the same grass made into hay. It was made clear that the conversion of indigestible fiber into soluble compounds which has been claimed for ensilage has been overestimated, and that the loss of substance by fermentation has, by many, been exaggerated. Among the more important results of the investigation is the direct proof that in ensilage a considerable portion of the insoluble albuminoids is rendered soluble.

Charles W. Dabney, Jr., and B. von Herff, of the North Carolina Experiment Station, report upon the comparative value of the "Ruffle method" and of the "copper oxide" or "absolute" method for the determination of nitrogen, as ascertained in their experiments. They have worked the Rufflè method very nearly as described by its author, always using Bohemian glass tubing, but have not tried it without soda or without hypophosphite, as had been suggested; this method has the advantage of being simpler, cheaper, and somewhat quicker than the copper-oxide method. There are fewer risks to run, fewer combustion-tubes break, and for several reasons a much larger percentage of complete analyses are obtained by it. In using the copper-oxide method, the authors followed in the main the course described by Prof. Johnson, but without finding it necessary to pass oxygen; so they could omit the chlorate of potash from the end of the tube. In analyzing compounds rich in nitrogen, and especially those containing much nitrate, the addition of charcoal-powder to the substance causes the nitrogen to come off more regularly, and gives generally better results. Excellent results were obtained in jetting the air before combustion, and the nitrogen afterward, out of the tube, by using carbonic dioxide, without a pump, though that required more time than when a good pump was used. Magnesite or carbonate of manganese, put in the back end ot the tube, are the best sources of carbon dioxide for this purpose. Bicarbonate of soda can be used also. A combination of this method with a good pump is effective and quickens the process. The authors have devised an improved pump for the purpose. Their analyses as a whole show that in fertilizers containing small amounts of nitrogen, the Ruffle method and the copper-oxide method give equally good results. By the copper-oxide method the errors are apt to be in the direction of too much, by the Ruffle method in the direction of too little.

For the determination of very small quantities of silver, Carl Friedrich Föhr uses a combination of the ordinary dry process and the blowpipe test. His method does not require any more time than an ordinary assay, and the determination by it may be completed in four and a half or five hours. It is accurate for portions of silver that only form fractions of a thousandth per cent., and is especially suitable for very poor silicates.

Agricultural Chemistry.—The origin of the dark-green circles of grass alternating in some seasons with fungi, which are called "fairy rings," after having been a subject of inquiry since it was brought under attention in the Royal Society's "Transactions," has received a new explanation from the studies of Messrs. Lawes, Gilbert, and Warrington, of Rothamsted. Believing that the growth of the fungi was owing to some extraordinary power they had of assimilating nitrogen either from the atmosphere or from the soil, the authors tried direct experiments to determine the question. Samples of soil were taken from within a fairy ring, from immediately upon it, and from outside of it. Of these specimens the soil from within the ring yielded upon analysis the lowest percentage of nitrogen, that from the ring itself a higher percentage, and that from outside of the ring a higher percentage still. The soil had therefore lost nitrogen by the growth of the fungi, and the obvious conclusion was that the fungi possess a greater power than the grasses of abstracting nitrogen from the soil. The analyses of the various species of fairy-ring fungi do not greatly differ. Two species occurring at Rothamsted contain nitrogenous compounds to the amount of one third of their dry substance, and give an ash rich in potash and phosphoric acid. Their occurrence in pastures and continuance in growth are dependent on conditions of manuring and of soil and season. They are rarely developed on rich soils, or on those which are highly manured, or in seasons favorable to the general herbage of the turf; but they prevail wherever the growth of the grass is inferior. Previous to this discovery at Rothamsted, it was not known that any plant could feed directly on the organic nitrogen of the soil itself.

According to P. de Gasparin, all granitic, metamorphic, volcanic, schistous, and calcareous rocks contain phosphoric acid. It may be said that about 5 per cent. of the phosphoric acid is combined with organic matters, and it is mainly this 5 per cent. which furnishes phosphoric acid to plants. This small accumulation may be increased by adding manure. To determine phosphoric acid, the author recommends that the sample of earth should be treated by *aqua regia* having an excess of hydrochloric acid. In the filtered liquid ammonia is added slowly, and not in sufficient quantity to make the liquid alkaline. Afterward an excess of ammonia is added, and all the phosphoric acid is left in the precipitate. This is calcined, ground to a fine powder, and treated with nitric acid of $\frac{1}{10}$ strength. The filtered solution is precipitated by ammonium molybdate, etc.

Mr. R. Warington's experiments at Rothamsted have confirmed the soundness of the theory of Messrs. Schloesing and Müntz, that nitrification in sewage and in soils is the result of the action of an organized ferment. The evidence for this theory is now very complete. The process of nitrification is strictly limited to the range of temperature within which the vital activity of the living ferment is confined, going on with slowness at 0° C., reaching its maximum at 37°, and ceasing at 55°. It is also dependent on the presence of plant-food suitable for the formation of organisms of a low character; it is prevented by antiseptics and by heating to the boiling-point; and it can be started in boiled sewage or other sterilized liquid by the addition of a little surface soil or a few drops of a solution already nitrified. Evidences of the presence of the nitrifying organism have been found in the soil from the surface down to a depth of eighteen inches, which may be regarded as the limit in an ordinary clay soil. In a sandy soil and a clay that is penetrated by worms, it may go lower. It is most abundant in clay at about six inches below the surface. The analyses of soils and drainage waters have taught that the nitrogenous humic matter resulting from the decay of plants is nitrifiable; also that the various nitrogenous manures applied to land, as farm-yard manure, bones, fish, blood, rape-cake, and ammonium salts, undergo nitrification in the soil. As ammonia is so readily nitrifiable, we may safely assert that every nitrogenous substance which yields ammonia when acted upon by the organisms present in the soil is also nitrifiable. Besides ammonia, two amides and two forms of albuminoids have been found nitrifiable, but in those cases the formation of ammonia preceded the formation of nitric acid. In a solution containing a nitrifiable substance, supplied with the nitrifying organism and the food-constituents necessary for its growth and activity, the rapidity of nitrification will depend on a variety of circumstances, among which are the weakness of the solution; temperature; deficiency of light; the presence of oxygen; the quantity of the nitrifying organism; and the degree of alkalinity of the solution.

A. Guyard recommends the following tests for the determination of nitrogen in the soil: For ammoniacal nitrogen, calcium carbonate, 10 grammes to 100 grammes of soil; for organic nitrogen readily transformable into ammonia, magnesia subcarbonate, five grammes; for nitrogen tolerably easily converted into ammonia, calcined magnesia, two grammes; for nitrogen transformable into ammonia, calcined lime, one gramme; for second portion of nitrogen transformable into ammonia, caustic potash or soda, 0·5 to one gramme; finally, organic nitrogen by combustion with soda-lime.

Vegetable Chemistry.—Hansen, assistant to Prof. Sachs, has published accounts of his more recent researches on the composition of chlorophyl. The coloring-matter was extracted with alcohol from the decoction of young wheat, and the extract saponified. The soap is then precipitated by adding an excess of chloride of sodium, and the yellow constituent of the color is separated with petroleum ether. The soap is then cleansed with ether and treated with a mixture of ether and alcohol, which removes the green constituent; when purified and separated from the solution, this crystallizes out in beautiful spherical crystals. Chlorophyl green is opaque in the solid state, and appears of a black-green color, possessing no fluorescence, although it has that property (red) in solution. It is shown that some of the changes it appears to undergo with acids as described by authors are not due to their action on pure chlorophyl green, but on other unknown bodies. It is free from sulphur and from iron. The elementary analyses agree very closely, and, calculated for the ash-free substance, are as follow:

	I.	II.
	Per cent.	Per cent.
C.	67·26	67·94
H.	10·63	10·86
O.	16·97	16·12
N.	5·12	5·55
Total	99·98	99·97

The amount of carbon is 1 per cent. too low in both cases.

Chlorophyl yellow occurs in about the proportion of one part to 100 parts of chlorophyl green. Its solutions show no fluorescence, notwithstanding statements to the contrary. It possesses the reactions of Krukenberg's *lipochromes*, in the solid state, namely: a blue coloration with sulphuric acid, the same with nitric acid, and a green-blue with a solution of iodine in potassium iodide. It shows three bands in the blue half of the spectrum, but no absorption in the red, and agrees in spectrum with the yellow coloring-matter of blanched leaves (*etiolin*). Chlorophyl green possesses four bands in the red half of the spectrum, agreeing with the four bands of the ordinary chlorophyl solution. The quantity of chlorophyl contained in plants appears to have been underestimated; for Hansen has obtained from 450 grammes of dried wheat-leaves from three to four grammes of solid coloring-matter.

The existence of phenol in a free state in the cones, acicular leaves, and parts of the stem of the Scotch pine (*Pinus sylvestris*) has been shown by Dr. A. B. Griffiths. The quantity in the stem varies with the age of the part; the older portions yielded as much as 0·1021 per cent., while the young portions gave only 0·0654 per cent. The leaves yielded, according to their age, 0·0936 and 0·0315 per cent.; and the cones gave from 0·0774 to 0·0293, according to their maturity. This discovery is regarded by the author as tending to show that the phenol of the coal-formations is derived from coniferous vegetation, and as supporting from a chemical point of view the opinions of geologists that the coniferæ existed in that age. It further suggests a possible origin for petroleum. The same investigator has also found that farm-yard manure is highly capable of propagating the microscopic fungi, and that the parasite of the potato-disease (*Peronospora infestans*), in particular, throws out its nymphæ very actively in it. He suggests on the basis of this observation that manure may act as a medium for the development and dissemination of parasitic diseases. The bacteria which are developed in it are, however, completely destroyed by treating the manure with solutions of ferrous sulphate, cupric sulphate, or sodium chloride.

Prof. F. H. Storer has made experiments on the conditions favorable to the germination of the seeds of weeds. Selecting the seeds of *Polygonum acre* (water smart-weed), *Polygonum Persicaria* (spotted knot-weed), *Lappa officinalis* (burdock), *Ambrosia artemisæfolia* (rag-weed), *Bidens chrysanthemoides* (burdock), and *Setaria glauca* (bottle-grass), he planted them in his greenhouse, where the temperature was permitted to range from 48° or 50° Fahr. at night, to 68° or 70° Fahr. by day. Except of the knot-weed, only a very few of the seeds sprouted, while by far the larger part of them mildewed and were spoiled. The experiments were regarded as failures, and the lack of success was attributed to the fact that the temperatures, though favorable to agriculture, were too low for the germination of the seeds in question. Many of our commonest weeds are tropical plants; and the seeds selected for these experiments, excepting those of the burdock and knot-weed, came from plants that flourish during the hot weather of the later summer months.

The results of some recent investigations on the formation of starch in the leaves of dicotyledonous plants have recently been published by Prof. Sachs. For determining the presence of starch he used the iodine test upon the leaf after it had been plunged in boiling water and immersed in alcohol for the extraction of soluble substances and color. Sachs had already shown that, if a plant was placed in the dark, the starch disappeared from the leaves; it was known that, if a piece of tin-foil is placed upon a leaf, the covered part forms no starch, although the parts exposed to the light may be filled with it; and Kraus had shown that starch can be formed very rapidly in direct sunlight. Sachs's later experiments demonstrate on a number of plants that the starch formed on the leaves during the day may disappear completely during the night, and that the leaves shown to be full of starch in the evening may be quite empty of it on the next morning. The change depends upon the temperature and health of the plant, but occurs normally during the summer in plants growing in the open. The rapidity and completion of the process depend upon the weather. It was already known that the starch disappears from the leaves in the form of glucose, which travels by way of the vascular bundles into the stems. The results of the observations made on this point led to the conclusion that the processes of metamorphosis into glucose and translocation of the products of assimilation are also going on during daylight, although they are less evident then, because more starch is being formed and accumulated than is abstracted at the time. The starch was shown to travel in the form of glucose in all of the cases; but it was not proved whether the metamorphosis was effected by forces in the chlorophyl-grains themselves, or by means of diastatic ferments in the cells of the leaf. Sachs also directed his attention to the solution of the question of how much starch is produced in a definite extent of leaf-surface by assimilation during any particular period of exposure to bright sunlight; the experiments being made to show both the quantities of starch which disappear during the night and the quantities formed during the day. On the whole, Sachs concluded that from twenty to twenty-five grains of starch may be produced per one square metre of leaf-surface per day; and some plants produced much more than this. The experiments prove why plants are so vigorous during warm nights following upon hot, bright days; it is because the products of assimilation, formed in large quantities during the day, are able to pass more readily into the growing organs. Leaves used for fodder, etc., must differ in nutritive value to a very great extent if their starchy contents vary so largely during the day and night; and it thus becomes of primary importance whether such leaves are gathered in the morning or evening, in cold or in warm weather, etc. The discoveries will also materially affect the physiological value of the analyses of leaves.

Dr. T. L. Phipson has investigated the chemical phenomena of the respiration of plants, with experiments upon some of the unicellular algæ, *Achillea*, *Solanum*, *Veronica*, *Vinca*, *Galium*, and some ferns. He had many years before become satisfied that plants could not dissolve carbonic acid alone, that is, without the aid of some other chemical agent. When the fresh spring-water in which unicellular algæ were cultivated had given up all of its carbonic acid, and more of that substance was added, the faculty of evolving oxygen was only slightly restored, and it became less and less manifest with successive additions of the acid; while the addition of carbonic acid to water that had been thoroughly boiled for five minutes and then rapidly cooled, produced little or no effect. "It was, therefore, evident," says Dr. Phipson, "that something else is required by the plant, and that this 'something else' is destroyed by boiling the spring-water for five minutes. It is binoxide of hydrogen that is required. It exists, and its presence can be demonstrated, in all spring-water, and it is as essential to the life of the plant as is carbonic acid."

An Association of Official Chemists.—An Association of Official Chemists of the United States was organized during the last meeting of the American Association at Philadelphia. Chemists of the Department of Agriculture, State agricultural societies, and boards of official control, are eligible to membership in the Association, and each of the organizations thus represented is entitled to one vote on all matters on which the society may ballot, while other chemists are invited to attend the meetings and take part in the discussions, without having the right to vote. Prof. S. W. Johnson, of Connecticut, was elected president.

CHILI, an independent republic of South America.

Area and Population.—The area of Chili, 217,624 square miles previous to October, 1881, has since that time been increased to 340,179 square miles by successive territorial accretions, namely: part of Patagonia (about 83,291 square miles), in virtue of the treaty with the Argentine Republic, bearing the above date; the territory of Antofagasta * (19,388 square miles), conquered from Bolivia; and the province of Tarapacá (19,876 square miles) ceded by Peru under the treaty of Ancon. The territorial division is into eighteen provinces and four territories, which, with their respective areas and populations (on Jan. 1, 1882), are as follow:

PROVINCES.	Areas in square kilometres.	Populations.
Aconcagua	16,126	135,812
Aranco	21,000	58,064
Atacama	100,728	76,243
Biobio	10,769	81,128
Chiloé	55,000	73,041
Colchagua	9,829	156,270
Concepcion	9,205	170,885
Coquimbo	33,423	168,044
Curicó	7,545	106,408
Linares	9,036	131,161
Llanquihue	20,260	57,033
Maule	7,591	128,227
Ñuble	9,210	140,502
O'Higgins *	6,537	84,011
Santiago	13,527	311,700
Talca	9,527	116,059
Valdivia	19,536	86,578
Valparaiso	4,287	182,077
Angol (territory)	5,500	23,795
Antofagasta (territory)	50,215	14,000
Magallanes (territory)	195,000	1,291
Tarapacá (territory)	51,480	20,000
Totals	661,341 †	2,271,950

In this table is not included the recently acquired Patagonian region.

The population of the republic was estimated at 2,377,950 on Jan. 1, 1883. Of 2,237,949 inhabitants of the several provinces and territories (not including Antofagasta or Tarapacá), on Jan. 1, 1882, 1,125,057 were females. The number of marriages, births, and deaths, registered in 1878, were 13,110, 78,812, and 60,507, respectively. The births and deaths in 1880 were 85,782 and 70,086. The populations of the several capitals were estimated as follows in 1883:

Santiago	200,000	Cauquénes	7,000
Valparaiso	95,000	Lebú	7,000
Concepcion	16,000	San Fernando	7,000
Chillan	16,000	Ancud	6,000
Serena	14,000	Valdivia	6,000
Copiapó	12,000	Angol	5,000
San Felipe	11,500	Rancagua	4,500
Curicó	11,000	Puerto Montt	4,000
Linares	8,000	Punta Arenas	1,000
Angeles	7,000		

In virtue of an act of Congress of Oct. 31, 1884, the territories of Tacna and Arica (ceded to Chili for ten years, under the treaty of Ancon ‡) will be considered as a Chilian province, and will bear the name of Tacna. The boundaries of the province are: On the north, the river Sama, from its source in the mountain-range on the Bolivian frontier, to the Pacific Ocean; on the south, the Camarones ravine; on the east, the Republic of Bolivia; and on the west, the Pacific. The new province will be governed according to Chilian law, and its inhabitants will enjoy the same constitutional rights as the people of Chili. It is divided into the departments of Tacna and Arica. The first of these has on the north, east, and west the same boundaries as the province, and on the south the Camuñani ravine. The department of Arica, comprising the port of the same name, is bounded on the north by the department of Tacna, and on the east, west, and south its boundaries are those of the province. Tacna is the capital of the department of its own name and of the province; and Arica is the capital of its own department. The salary of the Intendente of Tacna is $8,000; that of the Governor of Arica, $4,000. The President of the Republic is empowered to appoint, every three years, for each of the two departments, three *alcaldes*, who, conjointly with the Intendente and Governor, will discharge the functions of a local governing body.

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* To this territory Chili claimed a right under treaties of 1866 and 1874.

* Formed from the province of Santiago, by law of December 10, 1883.

† = 255,338 square miles.

‡ See volume for 1883, p. 121.

Government, Government Officers, etc.—Chili declared her independence on Sept. 18, 1810, and threw off the Spanish yoke after gaining the decisive victory over the Peninsular forces commanded by Ordoñez, at Maipú, April 5, 1818. The Constitution framed in 1833, and amended in 1874, establishes three powers in the state—the executive, the legislative, and the judicial. The executive power is vested in a President, elected for a term of five years, and re-eligible. Four of the six Presidents, from the civil war of 1830 to the accession of Don Domingo Santa María in 1881, served two terms each, namely: Gen. Joaquin Prieto, 1831–1841; Gen. Búlnes, 1841–1851; Montt, 1851–1861; and Perez, 1861–1871. Suffrage, extended only to citizens that can read and write, twenty-one years of age if married, twenty-five if unmarried, and registered and qualified as high-tax-payers, is virtually limited to the wealthy. Hence the constantly small number of ballots thrown for Presidents in proportion to that of the inhabitants—little more than one to every fifty. "Chili is thus, in fact, an oligarchy, though in name a republic. No government on record, under the name of a republic, ever possessed more power than the Chilian Government. The President can, if energetic and so disposed, wield absolute authority, and ignore public opinion. And yet, this feature in the governmental policy of Chili serves to maintain a degree of peace unparalleled, not merely in countries inhabited by kindred races, but in almost any commonwealth in the civilized world; and has at the same time had the effect of promptly promoting the interests of the people, the development of the country, and the aggrandizement of the state. Thus the adoption of a constitution placing immense power in the hands of the supreme magistrate has proved a veritable blessing to the country. And, in view of the fact that the warm patriotic feeling so firmly rooted in the Chilian public has its very origin in the *esprit de corps* of the political class, one may conjecture that, although the President might dictate who shall be his successor, enlightenment and patriotism stand on guard, at least against the possibility of any military adventurer or vile speculator upon national revenues pushing his way upward, either on the social or political ladder of the country, much less obtaining the supreme power." The President of the Republic has a salary of $18,000. The Council of State, presided over by the President of the Republic, is composed of three members elected by the Senate, and three elected by the Chamber of Deputies, and a member of the courts of justice, an ecclesiastical dignitary, a director of finance, and an ex-minister or ex-intendant, appointed by the Executive. The legislative power resides in a Senate of thirty-seven members elected for six years, and a Chamber of Deputies, elected for three years, consisting of one representative for every 20,000 inhabitants. Deputies must have an income of at least $500; Senators, $2,000. The judicial power is vested in a High Court of Justice in the capital, four Courts of Appeal for the provinces, courts of first instance in the departmental capitals, and subordinate district courts.

The President of the Republic is Don Domingo Santa María (Sept. 18, 1881).

The Cabinet was composed of the following ministers: Interior, Don J. M. Balmaceda (April 12, 1882); Foreign Affairs and Colonization, Don A. Vergara Albano (Jan. 18, 1884); Justice, Public Worship, and Public Instruction, Don J. I. Vergara (1883); Finance, Don R. Barros Luca (Jan. 18, 1884); War and the Navy, Don C. Antúnez (May 6, 1884).

Church Dignitaries, Religion, etc.—There are, besides the Archbishop of Santiago, the Bishops of La Serena, Concepcion, and Ancud. The religion of the state is the Roman Catholic, but all sects are tolerated. The clergy and the theological seminaries are subsidized by the state.

Diplomatic and Consular Corps, etc.—The Chilian Envoy Extraordinary and Minister Plenipotentiary to the United States is Don Joaquin Godoy (accredited June, 1883).

The Chilian Consul at New York is Don B. R. de Espriella; and the Consul-General at San Francisco, Don J. de la Cruz Corda.

The United States Envoy Extraordinary and Minister Plenipotentiary to Chili is Dr. C. Logan (accredited in 1882). The United States Consuls to Chili are: Mr. D. M. Dunn, at Valparaiso; Mr. J. Grierson, at Coquimbo; and Mr. J. F. Van Ingen, at Talcaguana.

Army.—In 1883 the regular army comprised 9 generals, 18 colonels, 79 lieutenant-colonels, 131 majors, 238 captains, and 548 lieutenants: total, 1,023 officers. There were 3 regiments of horse, 1,500 strong; 10 battalions of foot, 9,040; 2 regiments of artillery, 2,196; and a corps of substitutes, 167: total, 12,903 men.

In September, 1884, the Government presented a bill in Congress to fix the strength of the land and sea forces: the strength of the former, including the three arms—artillery, cavalry, and infantry—was not to exceed 8,000. The mobilized National Guard was to be placed in reserve for the remainder of the year. The actual strength of the latter, in 1884, was 51,826, comprising 2,076 horse, 43,151 foot, and 6,599 artillerymen. Of the total guard, 17,408 were allotted for mobilization, in case of need, for that year.

Navy.—In 1884 the fleet was composed of the following craft:

VESSELS.	Tons.	Horse-power.	Crews of.
Ironclad Blanco Encalada	2,033	500	306
Ironclad Almirante Cochrane	2,033	500	306
Monitor Huáscar	1,130	300	174
Corvette O'Higgins	1,101	300	188
Corvette Chacabuco	1,101	300	186
Gunboat Magallanes	775	260	139
Gunboat Pilcomayo	600	250	138
Cruiser Amazonas	1,878	450	178
Cruiser Angamos	465	400	116
Steamer Abtao	1,057	300	160
Steamer Tolten	240	90	79
Transport Chile	1,175	400	....
Pontoon Thalaba	800	....	48
Pontoon Valdivia	700	....	43
Pontoon Miraflores	1,000	....	7
Total	15,581	....	2,065

There were, besides, five small steamers and eleven torpedo-boats, and an additional gunboat in course of building. In January, 1884, it was reported that Chili had given orders for the construction of still another ironclad, to cost $2,000,000. "Precisely what the purpose of the Chilians, in making such important additions to their already respectable navy, may be, is not very apparent. Their immediate enemies, Peru and Bolivia, are reduced to such abject extremities that they can scarcely be counted upon in any conflict that may arise in the near future. With no other powers have they any questions likely to provoke war, unless it be the United States, on account of the so-called unwarrantable interference of the latter recently in South American affairs. Such an idea is, however, too huge a burlesque even for Chilian national pride to consider."—The Government bill, referred to in the paragraph on the army, proposed the limitation of the fleet to two ironclads, one monitor, three corvettes, three gunboats, three transports, five hulks, two dispatch-boats, and a corps of marines 800 strong.

Education.—The University of Santiago, with faculties of law, medicine, mathematics, and the fine arts, was attended, in 1882, by 920 students; and the secondary school in connection with it by 1,059. The aggregate attendance at the 17 lyceums in the provincial capitals was 4,460. Besides the foregoing, there are normal, agricultural, and other special schools. The number of public primary schools in the year mentioned was 703, with 54,470 pupils enrolled, and an average attendange of 38,886; and that of the private schools 405, with an attendance of 15,106. The census of 1875 showed that more than half of the inhabitants of the republic, adults and children, could neither read nor write.

Finance.—No more recent returns have been published by this department than those given in the "Annual Cyclopædia" for 1883. On the occasion of the inauguration of the National Exhibition at Santiago, on Oct. 26, 1884, the chairman of the Exhibition Committee, Don Vicente Dávila Larrain, said that, in the nine months ended September 30th of that year, the revenue was larger by $1,403,501 than in the corresponding period of 1883, and by $3,310,123 than in 1882. The total yield of the customs department in the first nine months of 1884, 1883, and 1882, was $18,420,610, $17,027,109, and $15,120,487, respectively. In his message to Congress, President Santa María confirmed the announcement of a surplus of $13,000,000 in the national treasury, and said that a saving of $4,000,000 would be effected in the current year (1884). These assurances, however, could scarcely be expected to remove from the public mind apprehensions of an impending crisis. In November it was rumored through the Chilian press that a loan of £2,000,000 was being negotiated by the Government, the security offered being the proceeds of the sale of 400,000 tons of guano for which the Executive was then in treaty. By the terms of the contract, it was added that shipments were to begin within three months, and not be less than 15,000 tons monthly; 12,000 tons from the Lobos Islands and 3,000 from Huanillos and Pabellon de Pica. Many believed that by this means the crisis would be averted; while others regarded the contract as an error, asserting that, as only half the proceeds of the loan could be paid to Chili, it would hasten the very financial troubles it was intended to prevent. Again, the Congress, in November, authorized the Executive to negotiate a loan of £6,000,000 in Europe, for the purpose of consolidating a portion of the foreign debt.

The estimated revenue for 1883, inclusive of the surplus of 1882, was $51,320,000, and the expenditures $44,487,110, whence would result a surplus of $6,832,890. A native journalist made some important revelations concerning the financial state of Chili in connection with the industries of the country, and particularly that of mining. "The abolition of oppressive export duties on metals (he observes) has come to be a measure of urgent necessity, owing to the depressed condition of our copper-mining interests. The production of the Chilian mines, which formerly represented two thirds of all the copper in the world, is now rapidly declining, while that of other countries, particularly Spain and the United States, is growing apace. Not only do we sell less, owing to competition, but our copper brings a very much lower price than in the prosperous days of that industry. Had the fortune of arms not given us the niter regions, and if niter did not figure as an element of our commerce, Chilian exports would now be inferior in value to those of the years preceding the crisis of 1877 and 1878. In 1876 they were of the value of $37,848,506, gold; and in 1882, exclusive of niter and iodine, $36,345,683, paper money. But for the niter our situation would be the reverse of brilliant; and this is chiefly due to the decline in the production and depreciation in the value of our copper, as the result of competition. The abolition of export duties on metals would afford a degree of relief to our mining industry and enable it to grapple with the competition of other countries. To the exhaustion of the large and rich mineral beds, and the fall in the price of copper brought about by competition, has been superadded an increase in the cost of exploitation, to the very great detriment of our mining industry. The price of labor, by territorial extension both north and south, rather than as a result of war, and by the increased activity which the country's prosperity has infused into all branches of industry, is considerably enhanced; the price of coal has risen to such an extent that it is now quoted at figures almost double those of four years ago; and these circumstances add to the expense of production, while prices at the same time are declining. By doing away with the export duties and modifying the excessive import duties on certain commodities required for mining, that industry, of such paramount importance to Chili, may in a measure be raised from its present prostration, and any slight decrease of revenue occasioned at first by these measures, will soon be compensated by the increased consumption of other articles of import which will necessarily follow upon the revival of our mining interests."

National Debt.—The national debt of Chili, on Jan. 1, 1883, was officially stated at $91,416,385, or $45 per capita of the population, as follows:

Foreign debt (payable in gold)	$34,870,000*
Home debt	14,342,450
Paper money	28,000,000
Other floating debt	14,203,935
Total national debt	$91,416,385

The annual charge of the debt in 1882 was $6,891,955, or $3.12 per capita of the population. The exports in 1882 were $30.34 per capita; the imports, $22.44; the exports and imports, $52.78. About $10,000,000 of the foreign debt is funded at 6 and 7 per cent. interest; about $20,000,000, at 5 per cent.; and the rest at 3 and 4 per cent. A small portion of the home debt is at 9 per cent., but the major part at 6 per cent.

Commerce.—The foreign commerce of the republic has materially increased within the past five years, but the growth is due rather to the acquisition of new export staples, as before remarked, than to progressive development of her own natural resources. Peruvian guano-beds, and the nitrate deposits of Peru and Bolivia, have furnished her with new sources of wealth. The quantity of nitrate exported from Taltat, Antofagasta, Tocopilla, Iquique, and Pisagua in 1882 was 25·36 per cent. of what it was in 1881. The quantities and values are exhibited in the following table:

SOURCES.	Kilogrammes.	Values.
Taltat	51,804,122	$2,508,247
Antofagasta	53,479,189	3,530,626
Tocopilla	10,188,751	701,500
Iquique	271,114,898	15,186,943
Pisagua	112,759,585	6,771,948
Totals	499,346,545	$28,699,264

On comparing the foregoing sum—$28,699,264—with that of the table of general exports as given below, it will be seen that the nitrate represents more than two fifths of the total value of the whole Chilian exports for the year mentioned. In the exportation of guano there was a falling off of 48·40 per cent. as compared with 1881, owing to the circumstance that shipments of Mejillones guano were made from Antofagasta only.

The destination and values of the Chilian exports, and sources and values of the imports for the years 1881 and 1882, were as shown in the subjoined tables:

EXPORTS.

TO	1881.	1882.
Great Britain	$43,298,718	$52,806,602
France	3,793,797	5,099,963
Germany	2,940,036	3,756,917
Uruguay	365,447	758,710
Argentine Republic	70,024	342,750
United States	3,182,979	2,619,050
Peru	3,702,900	2,596,859
Ecuador	859,596	399,535
Brazil	408,205	307,958
Other countries	678,312	1,245,041
Totals	$59,296,024	$69,933,385

To these totals should be added the value of the provisions exported in 1881, $1,229,835, and in 1882, $1,276,220, which will bring the total values of the exports for the two years to $60,525,859 and $71,209,605 respectively:

IMPORTS.

FROM	1881.	1882.
Great Britain	$17,589,267	$22,586,495
Germany	7,385,876	8,975,178
France	5,588,916	7,776,264
United States	1,748,818	2,577,992
Argentine Republic	2,032,517	2,222,123
Peru	2,095,049	2,823,804
Brazil	530,900	912,229
Uruguay	136,875	482,882
Belgium	304,483	259,720
Italy	444,008	603,520
Ecuador	177,965	292,828
Spain	268,116	335,307
Other countries	452,030	1,144,875
Totals	$38,764,814	$50,992,217

Of the total value of the exports for 1882, mining products of all kinds stood for $57,055,681, of which amount Great Britain, Chili's largest purchaser, took $47,058,096, with agricultural products of the value of $5,645,521, or nearly two thirds of the total quantity exported. The chief buyers of bar copper and bar silver were Great Britain, France, and Germany. The total value of the copper was $14,776,677, and of the silver, $3,986,953, and of these amounts Great Britain took three fourths and nine tenths respectively. The copper products shipped to Great Britain during 1878–1882 were as follow:

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* As already expressed, the Executive was authorized, in November, 1884, to negotiate a loan of £6,000,000 for the consolidation of this debt.

YEARS.	Bar.	Regulus.	Ores.	Totals.
	Kilos.	Kilos.	Kilos.	Kilos.
1878.....	36,080,712	11,726,616	1,048,178	47,858,509
1879.....	36,190,735	10,296,624	81,101	46,558,460
1880.....	23,364,098	9,382,618	8,925,785	41,672,496
1881.....	25,316,821	10,208,100	3,512,542	39,037,463
1882.....	25,477,019	12,263,810	8,031,109	49,771,938

The exportation of borate of lime has been steadily on the increase, 4,311,895 kilogrammes having been shipped to Great Britain in 1882, against 679,920 in 1875, and 273,410 in 1874. But, next to copper, the commodities most extensively exported to Great Britain are wheat and wheat-flour ($4,560,400 in 1882), sugar ($663,915), and wool ($306,010). In the single month of May, 1884, there were shipped to the country last named 29,592,841 kilogrammes of wheat from Talcaguana, and 381,800 kilogrammes from Penco. Chili, while an importer of coal, mainly from Great Britain, exports native coal in considerable quantities. The following table exhibits the relative importance of these two branches of her commerce for the decade 1873–1882:

YEARS.	Coal exported.	Coal imported.
	Tons.	Tons.
1873	27,695	122,907
1874	42,468	118,841
1875	37,881	125,222
1876	46,280	114,920
1877	102,250	72,940
1878	104,478	57,219
1879	72,808	68,151
1880	59,278	195,724
1881	92,746	222,479
1882	111,232	280,904*
Totals	696,561	1,374,417

Chief among the British products imported by Chili are cotton fabrics (of the value of $6,091,040 in 1882), woolen fabrics ($1,490,840), and iron wrought and unwrought ($1,517,615). Of the total value of the imports into Chili in 1882, Great Britain furnished 75·20 per cent.; Germany, 16·32; France, 5·08; the United States, 2·96; Belgium, 0·41; and Italy, 0·02. The last two, however, do not here figure in their proper rank, since much of their merchandise finds its way to Chili through Great Britain, France, and Germany. The increased importation of British cotton fabrics, of late years, is accounted for by the fact that extensive requisitions thereof were made for the army.

In 1882 locomotives and railway material generally were imported of the total value of $932,802 (against $511,879 in 1881), of which sum Great Britain furnished $834,422, the United States $71,678, and France and Germany the remainder. In machinery, for the most part from England, there was an increase of 23·18 per cent. in 1882. Five sixths of the lumber was from the United States, and the remainder from Great Britain. Chili is said to import more nails and spikes from the United States than any other country in the world; the imports thereof in 1883 were 3,781,120 pounds, valued at $124,119. The imports from France are more particularly articles of luxury, these having been of the total value of $1,997,481 in 1882, against $1,363,914 in the year immediately previous.

Determined efforts are being made to render general the use of nitrate, and encourge its substitution for other fertilizers. The Nitrate Owners' Committee of Tarapacá, desiring to promote such a demand as shall bring about an increase of the present low rates, resolved to offer a prize of $5,000 for the best essay on the application of that article in agriculture. The essay was to be the property of the committee, who were to have it translated into all the modern languages, and circulated universally. Five hundred tons of nitrate were subscribed by the manufacturers for shipment to Europe and the United States, and for use by the Agricultural Society employed at the expense of the committee to make experiments. The expenses incurred were to be defrayed out of a fund already provided for that purpose; and the committee had been authorized to carry out the measures referred to, and prolong the shut-down of the works until 1885, or, if necessary, until 1886.

Mines.—The principal source of Chili's wealth has long been her mines. The number and yield of these in 1880 were as follows:

19 gold-mines, producing 1,146 tons of ore.
130 silver-mines, producing 1,116 tons of ore and 7 tons of metal.
606 copper-mines, producing 20,281 tons of ore and 2,651 tons of metal.
21 coal-mines, producing 22,959 tons of coal.

Port Movements.—The shipping at the various ports of the republic in 1882 was as follows:

FOREIGN.

ENTERED:
Sailing-vessels, 960, with an aggregate of 623,414 tons.
Steamers, 522, with an aggregate of 744,485 tons.
CLEARED:
Sailing-vessels, 805, with an aggregate of 514,721 tons.
Steamers, 623, with an aggregate of 906,807 tons.

Totals..... 2,910 vessels, aggregating 2,788,577 tons.

COASTING.

ENTERED:
Sailing-vessels, 2,277, aggregating 859,893 tons.
Steamers, 4,478, aggregating 4,889,068 tons.
CLEARED:
Sailing-vessels, 2,872, aggregating 888,881 tons.
Steamers, 4,841, aggregating 4,151,852 tons.

Totals...... 13,668 vessels, aggregating 10,289,214 tons.

Railways.—Chili, which was among the first South American countries to introduce railways, had, in 1883, lines representing a total length of 1,877 miles, of which 593 belonged to the Government. That these lines are profitable there can be no doubt, judging by the following statistics from official sources: The traffic receipts of the Coquimbo Railway for the three months ending Dec. 31, 1883, were $113,150, against $110,224 for the corresponding term of 1882, the corresponding net profits having been $65,353 and $66,004, respectively. The net profits for the six months ending Dec. 31, 1883, were $120,416, against $115,808 for the same months in 1882. The traffic receipts of the Copiapó Railway for the quarter ending Dec. 31, 1883, were $161,467, against $162,584 for the same months in 1882; and the corresponding net profits, $64,257 and $78,510, respectively. The net profits for the two years mentioned were $284,767 and $319,298.

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* 94·78 per cent. from Great Britain.

Telegraphy.—The telegraph statistics for 1884 were as follows: Total length of lines, 12,430 miles; number of offices, 131; number of dispatches, 428,705; receipts, $378,749. Of the offices, 115 belonged to the Government, with 5,590 miles of the lines.

Post-Office.—The Post-Office statistics for 1883 were given as follow: Number of offices, 343; number of letters transmitted, 19,204,097; samples, 19,950; legal documents, 13,786; official dispatches, 493,572; newspapers, 11,046,534: total, 21,777,939 packages. Receipts, $378,749. Differential rates of inland postage still exist in Chili, as in most of the other Spanish-American republics. The time has arrived for a uniform rate of two cents per half-ounce for letter-postage, and the Chilian press has begun to urge the importance of this reform. Experience has shown, particularly in the United Kingdom and in the United States, that a uniform and low rate, far from prejudicial, has proved advantageous to the revenue; and there is reason to suppose that a similar system would be attended by like good results in Chili and elsewhere. Again, letters in Chili, besides postage, are subject to a delivery-tax, in some cases even higher than the original cost of transmission by mail. For instance, a letter costing, say, ten cents for conveyance from England to Valparaiso, costs five cents for delivery to any part of the city, or one half the amount paid for its transmission 10,000 miles by sea! A letter from any other province to Valparaiso costs ten cents additional for delivery there; but a letter from any part of the department of Valparaiso to the city pays but two cents postage, yet the receiver is subjected to a delivery-tax of five cents.

Politics.—The question of the separation of church and state has again been mooted in Chili, and gave place to an interesting debate in the Chamber of Deputies in September. A large majority of the members were agreed as to the desirability of the separation of the spiritual and temporal powers, but they differed widely with respect to the manner of effecting the disunion; the Government and a large majority of the House being in favor of a gradual separation, while some urged the expediency of the separation at a single stroke. Such is the only important question of a purely national character that occupied the legislative body in 1884. It gave rise to warm discussion in ecclesiastical and political circles, but the people looked on unmoved and apparently unconcerned as to the issue. The opinion of the press was, that the reform, though probably still to be postponed for years, would eventually be effected, and that without causing any excitement or giving ground for alarm.

CHINA, an empire in Asia, officially called Chung Kwoh ("The Middle Kingdom"). The Government is organized on patriarchal principles laid down in the books of Confucius and other ancient sacred writings. The Emperor has supreme despotic power, but for more than twenty years there have been minors on the throne, except during Tungche's reign of a year; and during this period a regency has directed affairs. The Grand Secretariat, consisting of two Manchu and two Chinese members, with two under-secretaries and ten subordinates, has the duty of placing public matters before the Regent for decision. The office of Grand Secretary confers the highest official rank, and is usually coupled with one of the highest posts in the public service, perhaps at a distance from the capital. Another body, called the Grand Council, consisting usually of four members, performs the duties of a privy council, and exercises a greater influence in the conduct of affairs. There are six boards of administration which have charge respectively of the civil service, finance, ceremonies, the army, justice, and public works. There is a Court of Censors, which, in conjunction with the Board of Justice, or Punishments, constitutes the highest judicial tribunal. The doctors of the Hanlin, or Academy, draw up important state papers in classical form, and collect the records of the dynasty. The Li Fan Yuen, an important ministry, always filled by Manchus and Mongols, attends to the relations with tributary states. The Tsungli Yamen, founded in 1861, has charge of foreign affairs.

The provinces of Pechili and Szechuen are each governed by a governor-general, or viceroy. There is a viceroy over the Liang Kwang, or two Kwang provinces of Kwangtung and Kwangsi; one over Kiangsi, Kiangsu, and Anwhui, called the Viceroy of the Liang Kiang; one over Fuhkien and Chekiang, the Viceroy of Min Cheh; one over Yunnan and Kweichow; one over Kansuh and Shensi; one over Hupeh and Hunan, the Viceroy of Houkwang. Each of these provinces, except three, is administered by a governor, subordinate to the viceroy. The provinces of Shansi, Honan, and Shantung are directed by independent governors. In 1875 the ancient military government of Manchuria, which had fallen into desuetude, was finally abolished, and the province placed under a viceroy, called the Viceroy of Shenking. In 1884 Chinese Turkistan was also organized as a province. Since 1877 Formosa has been a governorship. The Admiral of the Yangtsze-Kiang has the rank and title of a viceroy. Peking has its own government, subordinate to the Board of Works.

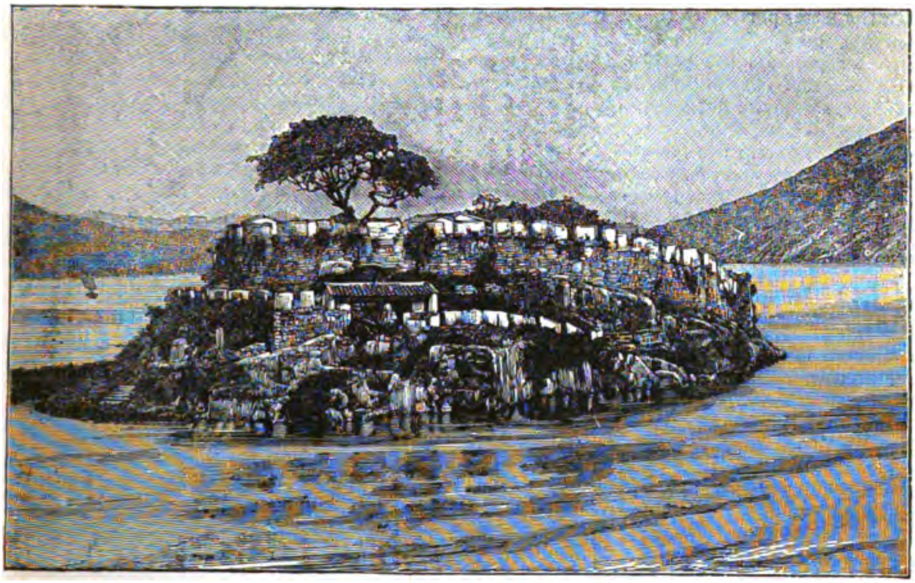
The Emperor Kwangsu is the ninth in succession from Aisin Gioro, the Manchu conqueror who founded the dynasty in 1644. He was born August 15, 1871, and proclaimed Emperor January 22, 1875, on the death of Tungche. The Empress Tse Hi, the mother of Tungche, became sole Regent upon the death, in 1881, of Tse An, the principal widow of the Emperor Hienfung.

Commerce.—The total value of the foreign and coast trade in 1882 was $586,202,000. In the foreign trade the imports amounted to $109,940,000, the exports to $95,350,000; the coasting-trade inward to $205,030,000, outward to $175,202,000. Of the total carrying-trade, the share borne in British vessels was 61·47 per cent.; in Chinese, 26·16; in German, 3·85; in French, 3·55; in American, 0·92; in Japanese, 1·81 per cent. A large portion of the Chinese carrying-trade is with the English colonies. Of the total foreign commerce, about 80 per cent. is conducted with the markets of Great Britain, India, Australia, Hong-Kong, Singapore, Africa, and America. Continental Europe takes 8·41 and Russia 1·17 per cent. Besides the regular export trade to Hong-Kong, which consists mainly of rice, and the importation of industrial products from that port, a large fraudulent traffic is carried on in junks. The opium-trade has declined rapidly in recent years, the decrease in 1882 amounting to $14,000,000. The decline is due to the spread of poppy cultivation in China, the improved quality of the Indian drug, and the efforts of the Chinese Government to suppress the opium-vice. The trade in piece goods showed a falling off of $7,500,000. The cause was the deficiency in the silk and tea crops, together with droughts in Shansi and Mongolia, floods in Shantung and along the Yangtsze-Kiang, and small sugar and rice crops in South China. Silk was exported in the same quantities as the year before; but the value was $5,000,000 less, owing to the break-down in prices caused by the financial difficulties of large speculative holders. Tea exports showed a decline of $2,500,000. The Chinese and English duties, and the manipulation of the market, make the price in London twelve times that paid to the grower in Foochow. Consequently, the teas of Japan and Assam are driving the Chinese growths from the market. Only in Formosa are European merchants allowed to introduce improved methods, cheapening the cost of cultivation and curing, and adapting the product to European taste. The silk-trade has passed from the hands of London merchants into those of Lyonnese firms, who now supply with partly manufactured materials their successful German and Swiss competitors in Lyons fabrics. The export of tea, which was 90,066,000 pounds in 1860–'61, reached the maximum of 174,514,000 pounds in 1880–'81, and then declined to 149,101,000 pounds in 1882–'83, and 151,140,000 pounds in 1883–'84. The silk export declined from 79,199 bales in 1861–'62, the highest point, to 22,891 bales in 1882–'83, and 17,869 bales in 1883–'84. The silk-trade has suffered through Japanese competition and disease in the silk-worm. The year 1883 witnessed a financial panic in which nearly all the native banks collapsed. Four or five years of prosperity and the prospect of the introduction of the steam-engine, the railroad, and the telegraph, and the opening of the interior to foreign trade, induced a spirit of speculation. The success of foreign joint-stock concerns led to the establishment of innumerable Chinese trading, mining, and manufacturing companies, and to inordinate speculation in their shares. Few even of the enterprises that were honestly projected were in working order when the crisis arrived. Crop failures and the trouble with France brought on a general crash. The telegraph was actually introduced by the Government, which has long lines in operation, connecting the main divisions of the empire. Railroads will probably be introduced before long. The first railroad built in China was constructed secretly by the engineer of the Kaiping coal-mines, about seventy miles northeast of Tientsin, and is used for carrying coal from the mine to the canal, seven miles distant. A railroad that was built between Shanghai and Woosung to carry passengers encountered riotous opposition, and was finally torn up by order of the authorities. In 1884 Li Hung Chang induced the Government to authorize for military purposes a railroad between Peking and Tientsin. Mines meet with the same superstitious objections; yet in order to render the navy and arsenals independent of the Japanese coal-supply, Li Hung Chang had large mines opened at Kaiping and others at Kelung.

The foreign trade of the various treaty ports in 1882 was, in millions of taels, as follows: Shanghai, 50; Canton, 29; Tientsin, 22¼; Swatow, 19¾; Chin Kiang, 14¾; Foochow, 14¾; Ningpo, 11¾; Amoy, 11; Chefoo, 9; Newchwang, 6¾; Tamsui, 4; Wuhu, 3¾; Takow, 8; Kiungchow, 1¾; Pakhoi, 1½; Wenchow, ½; total, 196 millions, equal to $270,000,000. The Yangtsze river affords the only avenue of trade into the interior. The river ports of Chinkiang, Wuhu, King Kiang, Hankow, and Ichang absorb one third of the foreign commerce, without reckoning the share of Shanghai in the Yangtzse trade. There are districts in southern and western China more productive and prosperous than those on the river. Many of the foreign merchants welcomed the conflict with France, believing that, if humiliated by a European military power, China would yield to diplomatic pressure with regard to inland tolls, aggravated by extortionate "squeezing" on the part of provincial governors, which now render the customs tariff and commercial rights secured by treaties largely illusory.

Political Crisis.—The Empress-Regent and Prince Chun, father of the Emperor, made the fall of Bacninh the occasion for degrading Prince Kung and the other members of the Grand Council. Once before, in the last months of the reign of Tungche, Prince Kung, who had directed affairs since the death of his brother Hienfung in 1861, was superseded by Prince Chun, whose more vigorous counsels pleased the Palace party and the young Emperor. When Tungche died, without choosing his successor, the Empress Dowager and Prince Chun had the infant son of the latter appointed Emperor in a family council, although by the dynastic law he was ineligible, being of the same generation as the deceased Emperor, and therefore not competent to perform the rites of ancestor-worship toward his manes. Prince Chun thereby obliterated himself politically, according to Chinese ideas, since if he took any part in the direction of the state his parental authority would compromise the supreme power of the Emperor. He retired with the rank of Imperial Prince to the office of curator of the family mausoleum, which post he also resigned in 1879; but in 1880 he took a military post of enormous power, that of commander of the field force of the Imperial Province. The break-down of the Chinese defense of northern Tonquin gave Chun and the dynastic and Manchu party, of which he was the head, the chance to oust Prince Kung and the officials of Chinese race, who had advanced to the highest stations under the rule of the latter. A more vigilant and valorous central government, not weakened by the influence of Li Hung Chang and other believers in European superiority, was welcome to the nation. Prince Kung was charged with negligence and mismanagement, with bribe-taking, with opposing the imperial desire for a resolute and active policy, and with aiming at supreme power. By an edict obtained from the boy Emperor he was deprived of all his offices and emoluments. His subordinates in the Grand Council were dismissed on various indictments. The Governors of Kwangsi and Yunnan, the provinces bordering on Tonquin, were ordered to Peking in disgrace. Two of the officers in Tonquin were sentenced to be beheaded in front of their troops. The Viceroy of Canton was dismissed for disobedience, but, upon confessing his fault, was continued in office, pending an investigation. Prince Chun took the presidency of the Grand Council, which had been filled by his elder brother for twenty-four years, excepting two brief intermissions. Two other Manchus, Prince Li-Shi-To and O-Le-Ho-Pu, and Chang-Chi-Wan, a reactionary mandarin, were appointed in the place of the other councilors. Three other Chinese were made associate members, without a full voice in the deliberations. Prince Kung's place as President of the Tsungli Yamen was given to Prince Koang, of the blood royal, Chun's most confidential political adherent. Li Hung Chang was not disturbed in his post of Viceroy of Pechili. His knowledge and ability, and also his power as the organizer and commander of the only efficient military force in the empire, and a person of vast influence throughout China, gave his counsels to the Empress a force superior to General Tso, the Marquis Tseng, and all the fire-eating courtiers and mandarins. He was the only man who could defend the capital against foreign foes, the only man also who could lead a revolution and upset the Tartar dynasty. Exasperation at the ruthless reprisals of the French, and a knowledge of the difficulties the French Government would encounter in an earnest campaign, changed the situation and defeated the peaceful solution nearly effected by Li. In September the composition of the Tsungli Yamen was changed by the replacement of six members by new councilors, who possessed more efficient administrative qualities and supported a more vigorous policy toward France. The general effect of the conflict with France was to strengthen and improve the central Government. The degradation of Prince Kung was only temporary, as on former occasions; yet he was not restored to his position, but called in as a coadjutor.

Conflict with France.—At the beginning of 1884 Chinese garrisons were stationed in Bacninh, Langson, Chatke, Caobang, and Laokai, awaiting the attack of the French. The Black Flags, whom the Chinese Government at first regarded as rebels and outlaws, after their valiant resistance to the French advance, were accepted as allies, and received assistance in men and money. The Chinese Government announced a state of "unofficial war" with France. The Marquis Tseng threatened war in case the Chinese garrisons were attacked, while M. Ferry spoke of exacting an indemnity of China for the irregular hostilities in Tonquin. About 6,000 were moved south to aid the Black Flags, and volunteer forces in defending the mountain districts of Tonquin. Diplomatic intercourse ceased after the departure of the Marquis Tseng for England. The capture of Bacninh by the French produced a sweeping change in the Chinese administration, which resulted in the predominance of the anti-foreign party, yet it enabled Li Hung Chang to convince the Empress of the necessity of coming to terms with the French, who were meditating a blow at Canton, and the occupation of Formosa or Hainan as a pledge for the payment of 150,000,000 francs indemnity. That progressive viceroy was the author of the European armaments and coast defenses with which China has provided herself at great cost, and was conscious of the inability of the empire to withstand French naval and military attacks. Negotiations were begun informally by the Chinese at the suggestion of Gustav Detrine, a European official in the Chinese custom-house, and a friend of Li Hung Chang. The Chinese were given to understand that France would let fall her demands for an indemnity if the protectorate over Tonquin were acknowledged and the Chinese garrisons withdrawn; but that, in the contrary event, she would demand an enormous sum and occupy Formosa as a guarantee. The Regent, overruling the opposition of the Tsungli Yamen, authorized Li to conclude a preliminary treaty with Captain Fournier, who had received full powers from his government. A draught convention was arranged on the 9th of May, and on the 11th a treaty was signed by the plenipotentiaries at Tientsin, subject to the ratification of the two governments. The Chinese representative conceded far more than the French in the earlier stages of the controversy had demanded, abandoning not only the suzerainty over Annam, but the neutral zone, and throwing open to French commerce the southern provinces of China. It was orally stipulated that China should not be required to renounce the suzerainty openly, and that the French should in their acts respect the susceptibilities of the Chinese people in this regard. The treaty was peculiarly worded so as to carry the impression of mutuality, although the advantages were all on the side of France. Article I bound France not only to respect the southern frontier of China, bordering on Tonquin, but to guard it against attack by other nations. Article II bound China, in return for this guarantee of good neighborship, to withdraw the Tonquin garrisons, and to respect present and future treaties made directly between France and the Court of Annam. Article III engaged China, in consideration of the waiver of an indemnity, to agree to free commercial intercourse between France and Annam on the one hand and China on the other along the whole southern frontier bordering on Tonquin, subject to regulations and tariffs to be concluded on conditions most favorable for French trade. Article IV pledged France to draught her final treaty with Annam in language not derogatory to the prestige of China. Article V provided for the negotiation of a definitive treaty, on the bases established in this preliminary convention, in three months. The natural frontiers of Langson, Caobang, and Laokai were taken as the boundary of Tonquin. The Marquis Tseng was recalled by his Government after the defeat at Bacninh. Li-Fong-Pao, Chinese Minister at Berlin, proceeded to Paris as interim representative. The treaty of Tientsin pledged China to recall her garrisons immediately. The time agreed upon was between the 6th and the 26th of June. An angry agitation was started in China, in condemnation of the treaty and against Li Hung Chang. While the Tsungli Yamen were deliberating about the ratification of the convention, and ready to seize any pretext for its rejection, the French hastened to take advantage of the situation and to carry out its executory provisions. They demanded of the Regents of Annam the imperial seal. They refused to deliver it up, declaring that it would be an act of treason, but agreed to burn it, which was done in the presence of M. Patenôtre when the new treaty of Hué was signed, June 6. This was regarded by the Chinese as a violation of the treaty, being an act calculated to impair the prestige and dignity of China. At the very date set for the withdrawal of the Chinese troops, General Millot sent a column under Colonel Dugenne to occupy Langson. The clause specifying dates for the evacuation, according to Li's account, was not agreed to by him, but upon his firm objections was struck out of the treaty by Captain Fournier, who countersigned the erasure with his initials. This statement was denied by the French plenipotentiary. Colonel Dugenne appeared before Langson the 22d of June and demanded the evacuation of the town. The Chinese commanders replied that they knew of the treaty, but could not surrender the fortress without orders from their superiors; they therefore begged the French commander to wait until instructions could arrive from Peking. Colonel Dugenne nevertheless, though contrary to General Millot's commands, which were to await instructions if resistance was encountered, pressed forward to take possession of the citadel. Beyond Bac Le the French troops ran against the Chinese in force, posted where their fire would prove most effective. In the engagements that followed, the Chinese lost far more troops than the French (see TONQUIN). The Bac Le affair changed the course of events. The French Government characterized the attack as a perfidious ambush, and demanded reparation in the form of an indemnity of 250,000,000 francs, besides the immediate withdrawal of the garrisons. The Tsungli Yamen, which wavered constantly in its attitude, at first welcomed the rupture and did not disavow the action of the commanders at Langson. It refused to evacuate the frontier towns before the signature of the definitive treaty. Upon receiving the French demands, presented in an ultimatum by Vicomte de Semallé, *chargé d'affaires*, on the 12th of July, the Chinese Government again changed its attitude and ordered the withdrawal of the garrisons at once. The French thereupon lowered their demand to 80,000,000 francs, and then offered to accept a sum equal to the compensation to be awarded to the wounded and the families of the slain, and the extra military expenses entailed by the Bac Le attack, in admission of the principle of an indemnity. China refused to accede to the principle, denying that there was an ambush or a breach of treaty engagements. On the 19th of July the Tsungli Yamen announced the appointment of the Viceroy of Nanking as plenipotentiary to conclude a definitive treaty with M. Patenôtre, the French envoy to China and Annam, and informed the French Government that the indemnity question had been submitted to the powers. The Chinese treaty with the United States binds China in the event of insult or hostility from any power to appeal to the good offices of the American Government. The Chinese Government accordingly requested the mediation of the President of the United States, and offered to refer the matter in dispute to his arbitration. The American Government accepted the task, on the condition that proof should be shown that China had not violated the convention. The French Government refused to accept arbitration on that assumption. M. Patenôtre met Chinese plenipotentiaries at Shanghai in the latter part of July. They maintained the position already taken as to the principle of an indemnity, but offered a contribution of 3,500,000 francs to assist the sufferers from the Langson affair. The French ultimatum, which expired August 1, was extended to allow the negotiations to come to a conclusion. On the 5th of August Admiral Lespès bombarded and took possession of the port of Kelung and the adjacent coal-mines in the island of Formosa as a guarantee for the payment of the indemnity demanded, 80,000,000 francs, payable in ten annual installments. The vessels steamed past the forts without giving notice of hostile intentions, and took a safe position in the inner harbor. By a similar stratagem Admiral Courbet was in a position to bombard Foochow and destroy the principal Chinese arsenal, having peaceably entered the Min river on July 18. The negotiations at Shanghai were still continued, until at length the Chinese Government recalled the plenipotentiaries, being unable to secure the acceptance of American mediation or of its direct proposals. The French representative then notified the Tsungli Yamen that, if the indemnity were not agreed to in forty-eight hours, Admiral Courbet would take reprisals in the Min river. On the 21st of August, when the ultimatum expired, Vicomte de Semallé pulled down the tricolor at the French legation in Peking and joined M. Patenôtre. At the same date Li Fong Pao called for his passports and returned to Berlin. On the 23d and five following days Admiral Courbet destroyed the fleet, dock-yard, arsenal, and forts in the Min river. The French, after retiring from Kelung, reoccupied and garrisoned it on the 1st of October. They attempted to take possession of Tamsui also, but were repelled. The Chinese fortified Canton and other ports with torpedo-mines, accumulated war material, and improved their naval and military armaments and organization. The warlike spirit spread after the French reprisals, and gained in force. The American minister continued his efforts to mediate the dispute. China was willing to accept American arbitration, but France still refused. At one time the Chinese authorities were inclined to agree to the principle of indemnity if the demand were reduced to a small sum. This proposal was made the basis of direct overtures by the French Government, which asked England to support its demands. The views of the Tsungli Yamen after this underwent a change. The Chinese grew more confident of their powers of defense after the victory at Tamsui and other successes, and in consequence of the advancement of warlike preparations under German engineers and naval officers. They also conceived the opinion that the French Government would draw back from a course involving actual war, or would give place to an administration more pacifically dis-



CHINESE FORT ON MIN RIVER.

posed. The Marquis Tseng kept his government informed of the opposition to the Chinese policy of M. Ferry in the Chambers, and of the apathy of the French people. The final proposals to the American minister were that France should not only waive the indemnity, but should withdraw from the protectorate of Annam, and in Tonquin leave the Chinese in possession of the frontier fortresses. The right of overland trade in Yunnan and the Kwang provinces was also denied. These conditions the American minister declined to transmit to the French authorities.

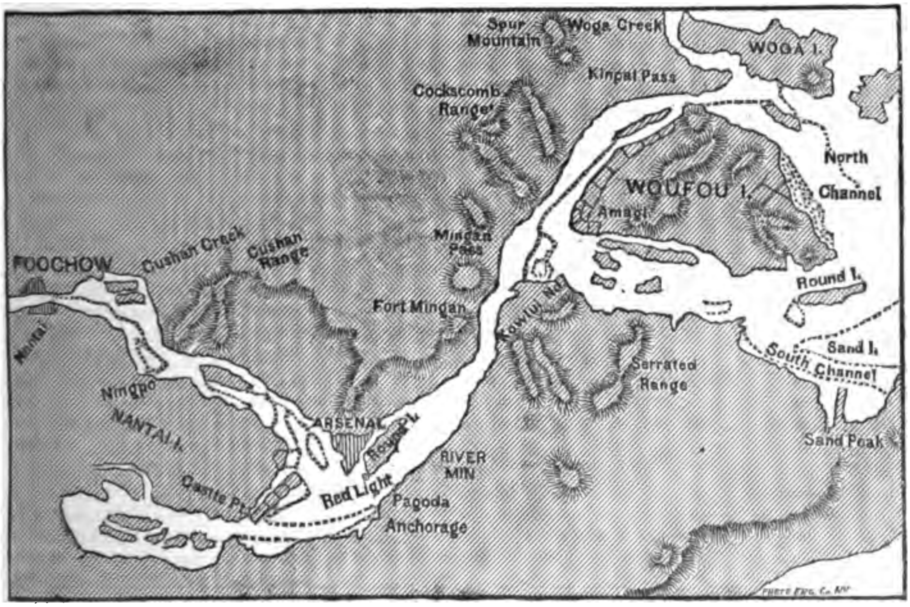
In the latter part of October, England tendered her good offices to the French, which were accepted on the basis of the occupation of Kelung and Tamsui for a definite period in order to satisfy the indemnity claim from their revenues. Negotiations were opened between Lord Granville and the Marquis Tseng in London toward the end of November. The conditions offered by China were substantially the same as those proposed to the American minister to China, demanding that France should recede from the Tientsin convention, renounce her protectorate over Annam, give up the commercial privileges in southern China, and draw a new frontier line in Tonquin, leaving in Chinese hands the fortresses of Caobang and Laokai. As mediation was impossible, negotiations were broken off after a few days.

On October 23d, the French proclaimed a blockade of the ports of Formosa. Both sides still refrained from a declaration of war, and denied that a formal state of war existed. Such an act would have been inconvenient to the French Cabinet previous to the regular assembly of the Legislature, because it would have necessitated an extraordinary convocation of the Chambers, without whose assent the Government can not engage in regular warfare. The French hostilities were declared to be analogous to the blockade of the Greek ports by Great Britain in 1850, and the seizure of San Juan by the United States in 1859. It was a state of reprisals, or an unofficial war. The blockade of Formosa, established with the assent of the British Government, was calculated to raise troublesome questions as to neutral rights. The French disclaimed the right of search, but asserted the right to fire upon neutral vessels running the blockade. If war were regularly declared, the right of coaling and repairing their vessels in neutral ports would be forfeited. The coal-mines at Kelung were flooded and unworkable. In Hong-Kong, after the issue of a proclamation by the Viceroy of Canton, threatening penalties to Chinese subjects and their families who assisted the enemies of their country, at the time when the flag-ship of Admiral Lespès was being repaired, all the laborers and boatmen refused to work for the French. The Chinese threatened later to cut off the food-supplies of the English colony if French war-ships were coaled, provisioned, and repaired there.

Simultaneously with their bolder diplomatic attitude, the Chinese began aggressive military operations. The French positions in Formosa were attacked from the land, and Chinese troops invaded Tonquin. In the military engagements, the French were only able to maintain their fortified positions. The Chinese fleet also showed signs of activity. During the London negotiations a tacit armistice was observed on both sides. After their failure, M. Ferry obtained an additional vote of credit and sent out large re-enforcements with the object of first expelling the Chinese from Tonquin and reducing that country to subjection, and then establishing the French occupation of the captured positions in Formosa. A blow at Canton was also contemplated. The naval defenses of Canton were believed to be complete. The approach to Peking was rendered secure by a formidable fortress at Port Arthur built by German military engineers and mounted with heavy cannon and numerous Gatling and Nordenfeldt guns. The port was effectually guarded with torpedoes. These preparations were made under the direct superintendence of Li Hung Chang, assisted by competent European officers. Here also were massed Li's troops, the only effective army in China, thoroughly trained and armed in the European manner. This body had been kept for years at a strength of 25,000 or 30,000 men. Three times that number were now gathered at Pei Ho to contest the landing of a French army. With Peking presumably impregnable and Canton secure, the Chinese Government was apparently indifferent to the "piecemeal bombardment" of other places on the coast. This scheme of reprisals was expected to embroil France with other European powers and bring about an earlier settlement of the conflict, and one more favorable to China. The Chinese were confident of contesting the possession of Formosa with France, and kept a sufficient force there to render the position gained by the French valueless for military or political purposes. The French force was too feeble to stir from the two positions taken on the coast, where they were hemmed in on all sides by a Chinese army greatly superior in numbers, which with each sally of the Frenchmen learned to stand its ground better; for, instead of being demoralized by heavy losses, the fighting qualities of the Chinamen were improved by the example of their adversaries. To establish grounds for the bold claim to the suzerainty of Annam in the final settlement, the Chinese Government sent hordes of raw troops into Tonquin. As the supply of such recruits was indefinite, they effectually disputed the possession of that country with the French. There, too, the Chinese displayed a tenacious endurance that enabled them to learn tactics and discipline from the victories of the enemy.

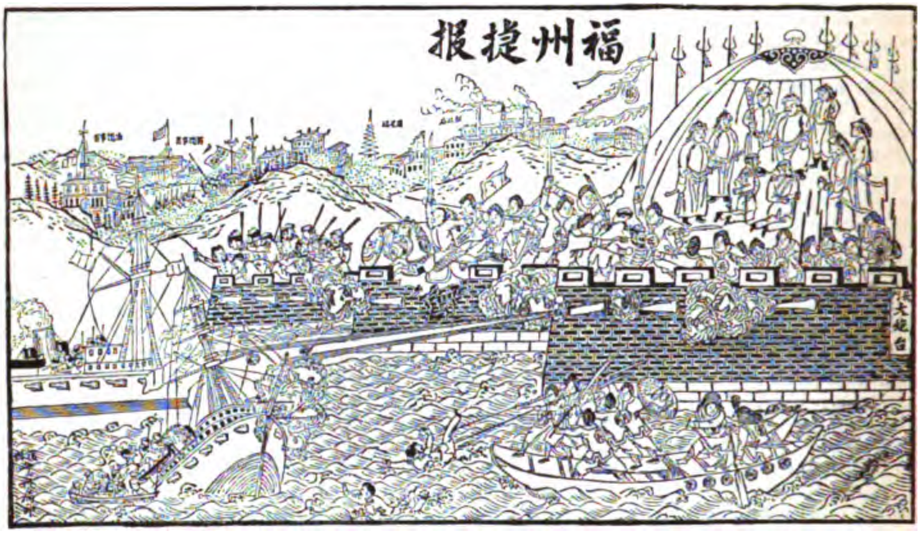
Foreign trade was paralyzed by the conflict with France. After the French acts of reprisal in Canton and the cities of the interior, outrages were committed upon missionaries and Christian converts. Europeans were obliged to flee from Quangtung and other provinces. In Canton and neighboring villages, in Namhoi, Chantsung, Kite-Yung, Swatow, and other places, Catholic and Protestant churches were destroyed and houses pillaged. In a riot at Wenchow on October 5th, the houses of foreigners and the records of the custom-house were burned.

Naval and Military Operations.—French hostilities in China began with the bombardment of Kelung, at the northeast extremity of the island of Formosa, August 5th. The object was to gain possession of the coal-mines in the vicinity. The town is an insignificant place, containing only 3,000 inhabitants, but has a trade in rice, oil, and camphor, besides coal. The harbor is large and was well protected by fortifications, placed on two rocky islands, several hundred feet high, near the entrance. Admiral Lespès was allowed to pass the forts with the Villars and the Lutin. The Chinese supposed that he merely wanted coal, and were not prepared to fight. Opening fire from behind, he dismantled two of the forts, and shelled the town. The bombardment lasted one hour. The Chinese troops afterward withdrew. The Galissonière, which engaged the forts from outside, received three balls, and the following day was beaten off with considerable loss. The shells, which were of foreign manufacture, failed to explode. A small party landed, but subsequently retired.



LOWER MIN RIVER.

On the 18th of July, immediately after the announcement of the French ultimatum, Admiral Courbet steamed up the Min river with his squadron, and anchored opposite the arsenal of Foochow. The only practicable entrance to the river, the north channel, is dangerous and difficult. The sand-bar outside can only be passed at high tide. Within is another bar. The long and narrow passage abounds in other obstructions, and is commanded by the powerful Kinpai and Mingan forts and the fortifications on Woufou Island. With strange negligence, the Chinese commanders allowed the French vessels, one by one, in charge of English river-pilots, to steam by these invincible fortifications. Admiral Courbet took his station beyond the arsenal, with his guns bearing upon it and the Chinese fleet, which was hemmed in there. The French commander threatened to fire on the Chinese vessels if they moved. Safe from the shells in the rear was the city of Foochow. He had the cruisers Volta, D'Estaing, Villars, Château-Renard, and Duguay-Trouin, the gunboats Aspic, Lynx, and Vipère, and two torpedo-boats. Chang Pei Lun, the Chinese commander, announced that his defensive preparations were perfect, and that he had the French fleet at his mercy. He was restrained by the central authorities from beginning hostilities. When the order came to destroy all Government property on the Min as an act of reprisal, August 23d, the French first engaged the Chinese fleet, consisting of the sloop Yang-Woo, carrying eleven guns, two gunboats, with one eighteen-ton gun each, five small gunboats, and three transports. The batteries on shore were armed with Armstrong and Krupp cannon. The gunboats fought well, as also did the sloop, until she



CHINESE PICTORIAL VERSION OF THE BATTLE AT FOO-CHOW.

was blown up by a torpedo. A cigar-shaped torpedo-boat, about fifty feet long, steaming twenty knots an hour, was sent out against her as soon as the fight began. When the French flag-ship, the Volta, opened fire, she answered with a broadside, which caused the chief loss of life suffered by the French during the action. Four minutes later she was struck by the torpedo. The next instant nothing was seen of the stately vessel of 2,000 tons displacement but floating timber. The Chinese sunken torpedoes failed to work. The fire-junks did no damage. The guns of the Chinese gunboats were mounted to fire end-on, and were not in position when the fight began. Except the two eighteen-ton gunboats, the Chinese vessels were mere yachts. Resistance was offered with Hotchkiss guns, but, under the heavy fire, the guns could not be served. The French machine-guns, of the same pattern, performed admirably, as did the breech-loading guns of French design. The resistance the Chinese were able to offer to the ponderous artillery of the heavily-armored French vessels was very slight. In fifteen minutes the combat was practically ended. All the Chinese vessels were disabled, except two that escaped. They ceased firing altogether, the survivors leaping overboard. The French allowed no surrender, but continued to fire for hours at the sinking ships and at the numerous war-junks in the river. The river was strewed with dead and wounded. On the French side seven were killed. The Chinese loss was estimated at 1,000 killed and 3,000 wounded. The iron-clad Triomphante joined the French fleet after the bombardment was begun. The shore-batteries of the arsenal did little execution. They ceased firing at three o'clock, two hours after the action opened. As soon as the fleet was destroyed, the French trained their guns on the arsenal and the forts and barracks in the neighborhood, and kept on firing for two hours after the Krupp guns were silenced. On the 24th and 25th the French shelled the arsenal and camps, and a village where, in shoal water, the escaped transports had taken refuge. On the 25th the ironclad Galissonière attempted to enter the channel. The Chinese gunners in the White Fort, three miles away, found the range at once, and sent a shot into her hull, and then another, which drove her off. On the 26th Admiral Courbet raked from behind the Mingan forts, which could not reply, as all their guns were directed outward. On the 27th and 28th the Kimpai batteries were also enfiladed. Small landing parties destroyed all the guns of European make. Although the narrow passes of the river afforded excellent shelter for sharpshooters, there were but few musketry-shots, which were so poor that only three or four Frenchmen fell. Hotchkiss guns in the tops of the vessels drove the infantry from the hill-sides, while Krupp shells caused the speedy evacuation of the forts. After dismantling all the forts and fishing up a few sunken torpedoes, which were not in working condition, Admiral Courbet steamed out of the river, and stationed his fleet at Matsou. The French made use nightly of electric lights both to watch the enemy and for telegraphic signaling. The Foochow populace and the fleeing soldiery indulged in looting in the European quarter, the inhabitants of which had all taken refuge on shipboard. The French destroyed the police junk-fleet. American, British, and German naval forces afterward policed the harbor, and also kept order in the city, where the civil administration was utterly disorganized. After the departure of the French, the

Chinese repaired the fortifications, and placed a barrier across the river.

In the beginning of September the French bombarded Kelung again, but did not occupy the place, as the Chinese had flooded the mines. On the 1st of October operations were begun, with the object of capturing and holding the port. During the night eight ships shelled the height of St. Clement. The Chinese in the end fled into the interior. The works on the west of the height were occupied, and on the 4th those on the southeast. The French then fortified the principal positions, and destroyed the other works. The Chinese losses in killed and wounded numbered 220, the French 18. The city was bombarded several days, and a number of actions were fought on land. The citadel finally capitulated. The Chinese then established themselves on the neighboring hills, from which they harassed the French and menaced their positions. The French surrounded themselves with a girdle of blockhouses.

A simultaneous operation against Tamsui was begun the 2d of October by Admiral Lespès. This port is on the northwest coast, 30 miles from Kelung. The four ships silenced the forts. The ships could not enter the port, on account of a line of torpedoes near shore. The positions from which these were commanded were out of range. Attempts were made on the succeeding days to take these positions by landing-parties. On the 8th the Chinese suffered 600 to land and awaited them in an ambuscade. The Chinese, hidden in the underbrush, opened fire at close range, and, when the French fled in confusion, the Chinese attacked their rear. Their loss was 70 men. The French finally established themselves on the shore and threw up earthworks.

On the 2d of November the block-house commanding the road to Tamsui was attacked by 1,000 Chinese, who were repelled with severe losses. On the 13th and 14th another engagement took place, in which both sides claim the victory. On the 13th of November the French suffered another defeat at Tamsui. A Chinese cruiser was captured and taken a prize to Kelung.

The blockade of the northern and western coasts of Formosa between Cape Nansha and Sooan Bay went into force October 23. The measure was ineffectual, as the Chinese were able to run into the ports with steamers and junks, and land troops and munitions. Before the announcement of the blockade, complications arose from the overhauling of English steamers at Tamsui and of English and German vessels in the river Min. During the operations in the Min the Chinese fired upon an English gunboat and a German man-of-war, mistaking them for French vessels. During the rainy season there was much sickness and mortality among the French troops. Little could be accomplished in the way of naval action or the erection of fortifications during the monsoon, nor could any important military operation be undertaken before the arrival of re-enforcements. Pursuant to the August vote of credit a naval force of 5,530 officers and sailors was maintained in Chinese and Tonquinese waters, in 34 vessels, including 18 specially constructed gunboats, and a military force in Tonquin of 10,000 Europeans and 5,000 Asiatics. The October vote increased the forces by four cruisers, 1,994 sailors, and 5,000 soldiers.

CHOLERA. It is impossible to overestimate the importance of the discovery that has been made during the past year with reference to the cause of cholera. The name of Koch has become familiar in this connection, not only to the medical profession, but to the general public. Soon after the outbreak of cholera in Egypt, in 1883, Koch was sent out at the head of a German commission to investigate the causes of the disease. He had already become famous through his discovery of the tubercle-bacillus (see "Annual Cyclopædia" for 1883), and was eminently fitted, by his intimate acquaintance with the minute organisms of disease, to undertake the work. From Egypt he went to India, where his most valuable investigations were conducted. The late epidemic in the south of France also furnished him with an opportunity of verifying the conclusions to which his studies had already led him. Though reports of his progress were issued from time to time, the brilliant results of his labors were first made known to the scientific world in an address presented at Berlin in July of this year. We shall gain the clearest idea of the subject by following his own paper and its deductions, after which it may be interesting to note some of the objections that have been made to his theory. Soon after arriving in India, Koch heard of an outbreak of cholera in a certain neighborhood, whereupon he immediately took up his residence there, and proceeded to study into its causes. That there was some connection between this disease and the water-supply had long been recognized by the Indian doctors. It will be remembered that in India the natives obtain their drinking-water from tanks, which are often polluted by sewage. Koch noticed that the cases of cholera were confined to certain huts, the inhabitants of which obtained their water from a certain tank. Moreover, their infected linen was washed at the same place. This circumstance, apparently trivial, led to a most important discovery. On examining, with the microscope, specimens of the suspected water, Koch found in it a certain peculiar organism which, from its shape, he named "comma-bacillus"; this was identical with the forms that he had previously discovered in the excretions and dead bodies of cholera-patients (see "MICRO-ORGANISMS"). These bacilli were only found in the water during the epidemic. As it declined, they became fewer, and finally disappeared. This circumstance seemed to establish a direct relation between the bacilli and the disease.

In no case were these parasites absent from the intestines after death, as shown by a large number of *post-mortem* examinations, and they were constantly found in the choleraic stools, diminishing in number and finally disappearing as the patient recovered. The parasites were easily cultivated outside the body in such fluids as gelatine and meat-broth, but Koch never succeeded in producing cholera in animals by the injection of fluid containing bacilli. He proved that the organisms were quickly destroyed by drying, as shown by numerous experiments with soiled linen. This fact is of great practical importance, as it is a strong argument against the theory that the germs of cholera are permanent, and may be transported to a great distance. The question may be asked, Why is it assumed that these parasites are the cause of cholera? They confine themselves to the bowel, which is the seat of cholera. In the early stage of the disease but few are found in the stools; but, as the dejections assume the characteristic rice-water appearance, they become more numerous. Moreover, they are not found in either the bodies or dejections of patients affected with other intestinal troubles (as dysentery). It has been noticed that the bacilli thrive best in an alkaline fluid, and in this way an attempt has been made to explain the fact that patients who are suffering from indigestion succumb more readily to cholera, since the germs, when introduced into the stomach, are rendered less active on account of the diminshed acidity of the gastric juice. As to the question of how the presence of these minute organisms in the intestines can cause cholera, all that can be affirmed at present is, that they exercise some destructive influence upon the blood, and doubtless also upon the cell. They seem to generate some peculiar poison within the intestine. Koch's deductions concerning the origin of cholera are as follow:

> If the origin of the separate epidemics be carefully looked into, it will be found that cholera has never reached us except through human beings themselves. We must not think that there are exceptions because the infected individuals can not always be found. So far as we know, no cholera epidemics have broken out spontaneously outside of India; hence, in this point, experience agrees with the presumption that cholera is caused by a specific organism having its habitat in India, where the circumstances are especially favorable for its development.

Koch regards the delta of the Ganges as the true home of the disease, since the luxuriant vegetation, crowded population, and poor sanitary arrangements especially favor its permanence. In other countries epidemics soon die out of themselves.

The reader may ask, What is the practical use of the parasitic theory of cholera, aside from its interest as a brilliant scientific discovery? It will undoubtedly exercise a great influence upon the future treatment of the disease, though at present, it must be confessed, no way has been devised of introducing into the intestines of cholera-patients (with safety) solutions strong enough to destroy the bacilli. In doubtful cases, where cholera is suspected, it will be possible to establish a diagnosis by finding the characteristic organisms in the stools. The principle will be most important when applied to public hygiene. Not only will quarantine regulations be more intelligently enforced, but the process of disinfection will be conducted in a more rational manner. Since it is certain that the bacilli perish as soon as they are thoroughly dried, the public will lose something of their fear of the disease, as it will be robbed of its mystery. As water is regarded as the principal source of infection, renewed care will be taken to see that this is free from impure germs.

Since the publication of Koch's views, his experiments have been repeated, and numerous attempts have been made to furnish the missing link in the chain of evidence by communicating cholera to the lower animals by introducing the parasites into their systems. Success has been claimed, but the results are still too imperfect to warrant any positive conclusions. Recent investigations have seemed to prove that the "comma-bacillus" is only a temporary form of another organism, which probably exists in a permanent state within the intestine. This complicates greatly the original question, and casts some doubt upon the specific character of the cholera-parasite. The latest news from Germany is, that Koch has at length succeeded in inoculating rabbits with the cholera-microbe, so as to produce a disease similar to that in man.

Drs. Klein and Gibbes, of the English Cholera Commission, who are still engaged in carrying on elaborate investigations in Bombay and Calcutta, have just issued a preliminary report, which is quite adverse to Koch. They claim to have established the following points: 1. The comma-bacilli are not characteristic of cholera, since they are found in the evacuations of diarrhœa and dysentery. 2. Certain straight bacilli are more constantly present in choleraic discharges than are the common variety. 3. Numerous experiments have demonstrated the impossibility of artificially communicating the disease to animals.

The Epidemic of 1884.—Cholera appeared as an epidemic in those portions of southern Europe bordering upon the Mediterranean, mainly in France and Italy. The earliest official mention of it was at Toulon, France, June 4; but subsequent inquiry showed that there had been cases at Toulon since April, and that the disease had been introduced by a vessel that had arrived at that port from Tonquin, in Asia. Toulon had a population of about 75,000, including Italian laborers, mostly employed in the harbor, who, with their families, numbered 10,000, living under circumstances every way favorable for the propagation of the cholera when once introduced. It spread steadily, and within two weeks was prevalent all through the city. A general stampede from Toulon took place toward the close of June. The Italians tried to make their way toward their homes, and the French scattered themselves through the neighboring region. On July 1 the Italian Government sent a transport-ship to carry away such of the Italians as still remained at Toulon. But all the roads leading from France to Italy were blocked up by fugitives from the pestilence, and a rigid system of quarantine, or rather of detention for a week or so, was established. On August 3 there were 8,000 persons in quarantine in Italy; 3,200 on the borders of France, and 4,800 at various ports along the Mediterranean coast.

Large numbers of fugitives made their way from Toulon to Marseilles. These quartered themselves all through the city, and the cholera broke out simultaneously in many parts. By August 3 the reports showed that 322 Italians had died of cholera in Marseilles alone. In France, however, the disease was quite local, only twenty-one places being set down as "infected," and in nearly all of these it was clearly shown that the pestilence had been brought by fugitives from the two great centers, Toulon and Marseilles. As an epidemic, the cholera in France may be said to have fairly ceased about September 15. At Marseilles and Toulon the deaths had fallen to three or four a day, and so continued during the month following. The whole number of deaths from cholera up to the 15th is officially given at 1,618, of whom 427 were Italians, mainly in Toulon and Marseilles, although for another fortnight the deaths in all France were about 100 a day. Other accounts more than double the entire number, making the number of cases 12,000, of deaths 6,000.

Italy suffered far more severely than France; the seaports of Naples and Genoa being the chief seats of the pestilence. On July 11 a steamer arrived at Naples, having on board 125 refugees from Toulon. At Naples all the conditions were favorable to the spread of cholera when it had been once introduced. The pestilence developed itself rapidly after a week or ten days. Up to September 14, the number of deaths in that city was 3,297. The disease there reached its height during the week from September 9 to September 15. On the 8th there were 451 cases and 154 deaths; on the 9th there were 638 new cases and 275 deaths; and during the ensuing week there were 5,649 cases and 2,262 deaths, an average of 323 a day; the extreme height of mortality was on the 12th and 13th, the number of deaths in those two days being 825. During the next week the disease gradually abated, the average number of deaths being about 200 a day. The decline was continued during the next week, though with considerable fluctuations; thus, on the 25th there were 105 deaths, on the 26th only 25, and on the 29th 100. Up to October 2, the number of cases in all Italy was reported at about 15,000; of deaths, something more than 10,000. The Italian records appear to have been kept with great care, and this is probably a close approximation to the actual numbers. Of the deaths, fully 8,500 were in Naples alone. The type of the disease, especially in Naples, was more than usually virulent, as fully two cases out of three resulted fatally; and, as far as can be judged by the reports, death usually occurred within a few hours after the symptoms of cholera first appeared, although it is impossible to say how long the germs of the disease may have been lurking in the system. The disease was mainly confined to the poorer classes, dwelling in the most filthy portions of the city.

Next after Naples, Genoa suffered most severely. The disease appeared there almost simultaneously with its manifestation in Naples, and was traceable with equal certainty to refugees from Toulon or Marseilles. Genoa has a population of about 180,000. We do not find a daily report of the cases there until September 8; on that day there were 31 cases and 20 deaths; and the number did not vary materially for three weeks. It increased with considerable rapidity after it had sensibly declined in Naples. On September 28 there were 39 cases and 25 deaths; on the 29th, 95 cases and 55 deaths; after which the deaths fell back to 20 or 30 a day for some time. The whole number of deaths in Genoa was not far from 600; or, in proportion to the population, about one fifth as many as in Naples. The remaining deaths in Italy were principally at a few minor seaports, and in the quarantine stations on the French frontiers. A very considerable number of cases occurred among the cordon of soldiers who maintained the quarantine. The smaller Italian villages along the line suffered more than the larger towns, because the refugees from France reached them by the by-paths through the mountains, thus escaping the quarantine that kept them out of the towns on the main roads. It is satisfactorily established that the cholera did not originate spontaneously in any place in France or Italy, but was always introduced by refugees from Toulon; and that the disease was brought to Europe by a single vessel from Tonquin, which arrived in Toulon in April.

The cholera spread to some extent in portions of Spain that have water-communications with the infected districts of Italy; but in no district did it assume the proportions of a general epidemic. The entire number of deaths in all Spain was not many hundreds; but the details are not sufficiently minute to warrant more than a general approximation as to the number of cases. In no other part of Europe did Asiatic cholera make its appearance. The 20,000 deaths undoubtedly originated in the single infected vessel at Toulon, for there is no record of any other cases having been brought from Asia or Africa.

CLEVELAND, GROVER, twenty-second President of the United States, born in Caldwell, Essex County, N. J., March 18, 1837. On the paternal side he is of English origin. Moses Cleveland emigrated from Ipswich, county of Suffolk, England, in 1635, and settled at Woburn, Mass., where he died in 1701. His grandson, Aaron, went to East Haddam, Conn., in 1738, made money in land speculations, was designated in the town records as "a gentleman," and left an estate of £3,000. One of his sons, Moses, was grandfather of Major-Gen. Erastus Cleveland, of Madison, N. Y., who commanded the United States forces at Sackett's Harbor in the War of 1812. Another son, Aaron, great-great-grandfather of Grover, was graduated at Harvard College in 1735, and after a Presbyterian pastorate at Haddam, Conn., and subsequently at Malden, Mass., received orders in the Church of England, was ordained priest by the Bishop of London, and was commissioned by the Society for Propagating the Gospel in Foreign Parts to take charge of a church at Carlisle, Pa. On his way to his mission he was taken ill in Philadelphia and died in the house of his intimate friend, Dr. Benjamin Franklin, who wrote his obituary, printed in the "Pennsylvania Gazette," Aug. 18, 1751, of which Franklin at that time was editor. Aaron's son Aaron, Grover's great-grandfather, was a merchant in Norwich, Conn., was conspicuous for his opposition to slavery, and while a representative from Norwich introduced a bill in the Connecticut Legislature for its abolition. One of his sons, Charles, was the widely-known "Father Cleveland," for many years city missionary of Boston, and one of the daughters married Dr. Samuel Hanson Cox, father of Bishop Arthur Cleveland Coxe, of Western New York, resident at Buffalo. Another son of Aaron, William, was a silversmith and watchmaker at Norwich, Conn. His son, Richard Falley Cleveland, was graduated at Yale College in 1824, was ordained to the Presbyterian ministry in 1829, and in the same year married Anne Neal, the daughter of a Baltimore merchant of Irish birth. These two were the parents of Grover Cleveland.

The Presbyterian parsonage at Caldwell, where the future President was born, was first occupied by the Rev. Stephen Grover, in whose honor the subject of this biography was named; but the first name was early dropped, and he has been known from his boyhood as Grover Cleveland. When he was four years old, his father accepted a call to Fayetteville, near Syracuse, N. Y., where Grover had an academy schooling, and afterward was a clerk in a country store. The removal of the family to Clinton, Oneida County, gave Grover additional educational advantages in the academy there. In his seventeenth year he became a clerk and an assistant teacher in the New York Institution for the Blind, in New York city, in which his elder brother, William, an alumnus of Hamilton College, now a Presbyterian clergyman at Forrestport, N. Y., was then a teacher. In 1855 Grover started from Holland Patent, in Oneida County, where his mother then resided, to go West in search of employment. On his way he stopped at Black Rock, now a part of Buffalo, and called on his uncle, Lewis F. Allen, who induced him to remain and assist him in the compilation of a volume of the "American Herd-Book," receiving for six weeks' service $60. He afterward assisted in the preparation of several other volumes of this work, and the preface to the fifth volume (1861) acknowledges his services.

In August, 1855, he secured a place as clerk and copyist for the law firm of Rogers, Bowen, & Rogers, in Buffalo, began to read Blackstone, and in the autumn of that year was receiving four dollars a week for his work. He was admitted to the bar in 1859, but for three years longer he remained with the firm that first employed him, acting as managing clerk at a salary of $600, soon advanced to $1,000, a part of which he devoted to the support of his widowed mother, who died in 1882. He was appointed Assistant District Attorney of Erie County, Jan. 1, 1863, and held the office for three years. At this time strenuous efforts were making to bring the civil war to a close. Two of Cleveland's brothers were in the army, and his mother and sisters were dependent largely upon him for support. Unable to enlist, he borrowed money to send a substitute, and it was not till long after the war that he was able to repay the loan. In 1865, at the age of twenty-eight, he was the Democratic candidate for District Attorney, but was beaten by the Republican candidate, his intimate friend, Lyman K. Bass. He then became a law partner of ex-State Treasurer Isaac V. Vanderpool, and continued a successful practice till 1870, when he was elected Sheriff of Erie County. At the expiration of his three-years' term he formed a law partnership with his personal friend and political antagonist, Lyman K. Bass, the firm being Bass, Cleveland, & Bissell, and, after the forced retirement from ill-health of Mr. Bass, Cleveland & Bissell. The firm was prosperous, and Cleveland attained high rank as a lawyer, noted for the simplicity and directness of his logic and expression, and his thorough mastery of his cases, rather than for brilliant rhetorical or oratorical display.

In the autumn of 1881 he was nominated Democratic candidate for Mayor of Buffalo, and was elected by a majority of 3,530, the largest ever given to a candidate in that city. In the same election the Republican State ticket was carried in Buffalo by an average majority of over 1,600. But Cleveland had a partial Republican, Independent, and "reform" movement support. He entered upon the office, Jan. 1, 1882, and the following extract from his inaugural address was the key-note of his administration:

> It seems to me that a successful and faithful administration of the government of our city may be

> accomplished by constantly bearing in mind that we are the trustees and agents of our fellow-citizens, holding their funds in sacred trust, to be expended for their benefit; that we should at all times be prepared to render an honest account of them, touching the manner of their expenditure; and that the affairs of the city should be conducted, as far as possible, upon the same principles as a good business man manages his private concerns.

He soon became known as the "veto Mayor," using that prerogative fearlessly in checking unwise, illegal, or extravagant expenditure of the public money, and enforcing strict compliance with the requirements of the State Constitution and the city charter. By vetoing extravagant appropriations he saved the city nearly $1,000,000 in the first six months of his administration. He opposed giving $500 of the tax-payers' money to the Firemen's Benevolent Society, on the ground that such appropriation was not permissible under the terms of the State Constitution and the charter of the city. He vetoed a resolution diverting $500 from the Fourth-of-July appropriation to the observance of Decoration-day for the same reason, and immediately subscribed one tenth of the sum wanted for the purpose. In brief, he vetoed every exorbitant or illegal appropriation. During his mayoralty the city celebrated the semi-centenary of its corporate existence. His admirable, impartial administration during his entire term of office won tributes to his integrity and ability from the press and the people, irrespective of party.

On the second day of the State Democratic Convention at Syracuse, Sept. 22, 1882, on the third ballot, by a vote of 211 out of 382, Grover Cleveland was nominated for Governor, in opposition to Charles J. Folger, then Secretary of the United States Treasury, nominated for the same office three days before by the State Republican Convention at Saratoga. In his letter of acceptance, two weeks afterward, Mr. Cleveland wrote:

> Public officers are the servants and agents of the people, to execute the laws which the people have made, and within the limits of a Constitution which they have established. . . . We may, I think, reduce to quite simple elements the duty which public servants owe, by constantly bearing in mind that they are put in place to protect the rights of the people, to answer their needs as they arise, and to expend for their benefit the money drawn from them by taxation.

In the canvass that followed, Cleveland had the advantage of a united Democratic party and in addition the support of the entire Independent press of the State. The election in November was the most remarkable in the political annals of New York. Both gubernatorial candidates were men of character and of unimpeachable public record. Judge Folger had honorably filled high State and Federal offices. But there was a wide-spread disaffection in the Republican ranks largerly due to the belief that the nomination of Folger (nowise obnoxious in itself) was accomplished by means of improper and fraudulent practices in the nominating convention, and by the interference of the Federal Administration. What were called the "half-breeds" largely stayed away from the polls, and in a total vote of 918,894 Cleveland received a plurality of 192,854 over Folger, and a majority over all, including Greenback, Prohibition, and scattering, of 151,742.

On the last day of December he went to Albany, and on the day following, dispensing with the usual parade, he walked with a friend through the streets from the Executive Mansion to the Capitol, and took the oath of office. He entered upon his office, in the words of his inaugural address, "fully appreciating his relations to the people, and determined to serve them faithfully and well." The very beginning of his administration was marked by radical reforms in the Executive Chamber. Persons having business with the Governor were immediately and informally admitted, without running a gantlet of clerks and door-keepers. Less rich than many former Governors, with private means of not more than $50,000, Governor Cleveland lived upon and within his official salary, simply and unostentatiously, keeping no carriage, and daily walking to and from his duties at the Capitol.

Among the salient acts of his administration were his approval of a bill to submit to the people a proposition to abolish contract labor in the prisons, and when so submitted the system was abolished by an overwhelming majority; his veto of a bill that permitted wide latitude in the investments into which directors of savings-banks might put deposits; and the veto of a similar bill allowing like latitude in the investment of securities of fire-insurance companies. He vetoed a bill that was a bold effort to establish a monopoly by limiting the right to construct certain street railways to companies heretofore organized, to the exclusion of such as should hereafter obtain the consent of property-owners and local authorities. His much-criticised veto of the "five-cent-fare" bill, which proposed to reduce the rates of fare on the elevated roads in New York city from ten cents to five cents for all hours in the day, was simply and solely because he considered the enactment illegal, and a breach of the plighted faith of the State. The general railroad law of 1850 provides for an examination by State officers into the earnings of railroads before the rates of fare can be reduced; and as this imperative condition had not been complied with previous to the passage of the bill, he vetoed it. He vetoed the Buffalo Fire Department bill because he believed its provisions would prevent the "economical and efficient administration of an important department in a large city," and subject it to partisan and personal influences. In the second year of his administration he approved the bill enacting important reforms in the appointment and administration of certain local offices in New York city. His State administration was only an expansion of the fundamental principles that controlled his official action while Mayor of Buffalo. In a letter written to his brother on the day of his election, he announced the policy he intended to adopt and afterward carried out, "that is, to make the matter a business engagement between the people of the State and myself, in which the obligation on my side is to perform the duties assigned me with an eye single to the interest of my employers."

The National Democratic Convention met at Chicago, July 8, 1884. Three days were devoted to organization, platform, and speeches in favor of candidates. In the evening of July 10 a vote was taken in which, out of 820 votes, Grover Cleveland received 392. A two-third vote (557) was necessary to a nomination. On the following morning, in the first ballot, Cleveland received 683 votes, and, on motion of Thomas A. Hendricks (subsequently nominated for the vice-presidency), the vote was made unanimous. He was officially notified of his nomination by the Convention Committee at Albany, July 29, and made a modest response, promising soon to signify in a more formal manner his acceptance of the nomination. Nearly three weeks later, while the Governor was taking a brief vacation at Upper Saranac Lake, he wrote and made public the following letter:

ALBANY, N. Y., *Aug.* 18, 1884.

GENTLEMEN: I have received your communication, dated July 28, 1884, informing me of my nomination to the office of President of the United States by the National Democratic Convention lately assembled at Chicago.

I accept the nomination with a grateful appreciation of the supreme honor conferred, and a solemn sense of the responsibility which, in its acceptance, I assume.

I have carefully considered the platform adopted by the convention, and cordially approve the same. So plain a statement of Democratic faith, and the principles upon which that party appeals to the suffrages of the people, needs no supplement or explanation.

It should be remembered that the office of President is essentially executive in its nature. The laws enacted by the legislative branch of the Government the Chief Executive is bound faithfully to enforce. And when the wisdom of the political party which selects one of its members as a nominee for that office has outlined its policy and declared its principles, it seems to me that nothing in the character of the office or the necessities of the case requires more from the candidate accepting such nomination than the suggestion of certain well-known truths, so absolutely vital to the safety and welfare of the nation that they can not be too often recalled, or too seriously enforced.

We proudly call ours a government by the people. It is not such when a class is tolerated which arrogates to itself the management of public affairs, seeking to control the people instead of representing them.

Parties are the necessary outgrowth of our institutions, but a government is not by the people when one party fastens its control upon the country, and perpetuates its power by cajoling and betraying the people instead of serving them.

A government is not by the people when a result which should represent the intelligent will of free and thinking men, is or can be determined by the shameless corruption of their suffrages.

When an election to office shall be the selection by the voters of one of their number to assume for a time a public trust, instead of his dedication to the profession of politics; when the holders of the ballot, quickened by a sense of duty, shall avenge truth betrayed and pledges broken, and when the suffrage shall be altogether free and uncorrupted, the full realization of a government by the people will be at hand. And of the means to this end, not one would, in my judgment, be more effective than an amendment to the Constitution disqualifying the President from re-election. When we consider the patronage of this great office, the allurements of power, the temptation to retain public place once gained, and, more than all, the availability a party finds in an incumbent whom a horde of office-holders with a zeal born of benefits received and fostered by the hope of favors yet to come, stand ready to aid with money and trained political service, we recognize in the eligibility of the President for re-election a most serious danger to that calm, deliberate, and intelligent political action which must characterize a government by the people.

A true American sentiment recognizes the dignity of labor, and the fact that honor lies in honest toil. Contented labor is an element of national prosperity. Ability to work constitutes the capital and the wage of labor, the income of a vast number of our population, and this interest should be jealously protected. Our working-men are not asking unreasonable indulgence, but as intelligent and manly citizens they seek the same consideration which those demand who have other interests at stake. They should receive their full share of the care and attention of those who make and execute the laws, to the end that the wants and needs of the employers and the employed shall alike be subserved, and the prosperity of the country, the common heritage of both, be advanced. As related to this subject, while we should not discourage the immigration of those who come to acknowledge allegiance to our Government, and add to our citizen population, yet, as a means of protection to our working-men, a different rule should prevail concerning those who, if they come or are brought to our land, do not intend to become Americans, but will injuriously compete with those justly entitled to our field of labor.

In a letter accepting the nomination to the office of Governor, nearly two years ago, I made the following statement, to which I have steadily adhered:

"The laboring-classes constitute the main part of our population. They should be protected in their efforts peaceably to assert their rights when endangered by aggregated capital, and all statutes on this subject should recognize the care of the State for honest toil, and be framed with a view of improving the condition of the working-man."

A proper regard for the welfare of the working-man being inseparably connected with the integrity of our institutions, none of our citizens are more interested than they in guarding against any corrupting influences which seek to pervert the beneficent purposes of our Government, and none should be more watchful of the artful machinations of those who allure them to self-inflicted injury.

In a free country the curtailment of the absolute rights of the individual should only be such as is essential to the peace and good order of the community. The limit between the proper subjects of governmental control, and those which can be more fittingly left to the moral sense and self-imposed restraint of the citizen, should be carefully kept in view. Thus, laws unnecessarily interfering with the habits and customs of any of our people which are not offensive to the moral sentiments of the civilized world, and which are consistent with good citizenship and the public welfare, are unwise and vexatious.

The commerce of a nation to a great extent determines its supremacy. Cheap and easy transportation should therefore be liberally fostered. Within the limits of the Constitution, the General Government should so improve and protect its natural water-ways as will enable the producers of the country to reach a profitable market.

The people pay the wages of the public employés, and they are entitled to the fair and honest work which the money thus paid should command. It is the duty of those intrusted with the management of their affairs to see that such public service is forthcoming. The selection and retention of subordinates in Government employment should depend upon their ascertained fitness and the value of their work, and they should be neither expected nor allowed to do questionable party service. The interests of the people will be better protected; the estimate of public labor and duty will be immensely improved; public employment will be open to all who can demonstrate their fitness to enter it; the unseemly scramble for place under the Government, with the consequent importunity which embitters official life, will cease; and the public departments will not be filled with those who conceive it to be their first duty to aid the party to which they owe their places, instead of rendering patient and honest return to the people.

I believe that the public temper is such that the voters of the land are prepared to support the party which gives the best promise of administering the Government in the honest, simple, and plain manner which is consistent with its character and purposes. They have learned that mystery and concealment in the management of their affairs cover tricks and betrayal. The statesmanship they require consists in honesty and frugality, a prompt response to the needs of the people as they arise, and the vigilant protection of all their varied interests.

If I should be called to the chief magistracy of the nation by the suffrages of my fellow-citizens, I will assume the duties of that high office with a solemn determination to dedicate every effort to the country's good, and with a humble reliance upon the favor and support of the Supreme Being, who I believe will always bless honest human endeavor in the conscientious discharge of public duty.

GROVER CLEVELAND.

To Colonel William F. Vilas, Chairman, and D. P. Bestor, and others, members of the Notification Committee of the Democratic National Convention.

The canvass that followed was more remarkable for the discussion of the personal characters and qualifications of the candidates than for the prominent presentation of political issues. In the election (November 4) four candidates were in the field, viz.: Grover Cleveland, of New York, Democratic; James G. Blaine, of Maine, Republican; Benjamin F. Butler, of Massachusetts, Labor and Greenback; John P. St. John, of Kansas, Prohibition. Cleveland carried the States of Alabama, Arkansas, Connecticut, Delaware, Florida, Georgia, Indiana, Kentucky, Louisiana, Maryland, Mississippi, Missouri, New Jersey, New York, North Carolina, South Carolina, Tennessee, Texas, Virginia, and West Virginia; Blaine carried California, Colorado, Illinois, Iowa, Kansas, Maine, Massachusetts, Michigan, Minnesota, Nebraska, Nevada, New Hampshire, Ohio, Oregon, Pennsylvania, Rhode Island, Vermont, and Wisconsin. Butler, none; St. John, none. In Iowa, Michigan, and Nebraska, there was a fusion on the electoral ticket between the Democrats and the Greenbackers; hence the total vote counted for Cleveland in those States represents both the Democratic and the Greenback parties. In Missouri and West Virginia there was a fusion on the electoral ticket between the Republicans and the Greenbackers; hence the total vote counted for Blaine in those States represents both the Republican and the Greenback parties. According to "The Tribune Almanac," the total popular vote in the United States was 10,067,610, divided as follows:

Cleveland	4,874,986
Blaine	4,851,981
Butler	175,370
St. John	150,369
Blank, defective, and scattering	14,904
Total	10,067,610

The following table gives the electoral vote:

STATES.	Cleveland.	Blaine.	STATES.	Cleveland.	Blaine.
Alabama	10	..	Missouri	16	..
Arkansas	7	..	Nebraska	..	5
California	..	8	Nevada	..	3
Colorado	..	3	New Hampshire	..	4
Connecticut	6	..	New Jersey	9	..
Delaware	3	..	New York	36	..
Florida	4	..	North Carolina	11	..
Georgia	12	..	Ohio	..	23
Illinois	..	22	Oregon	..	3
Indiana	15	..	Pennsylvania	..	30
Iowa	..	13	Rhode Island	..	4
Kansas	..	9	South Carolina	9	..
Kentucky	13	..	Tennessee	12	..
Louisiana	8	..	Texas	13	..
Maine	..	6	Vermont	..	4
Maryland	8	..	Virginia	12	..
Massachusetts	..	14	West Virginia	6	..
Michigan	..	13	Wisconsin	..	11
Minnesota	..	7			
Mississippi	9	.	Totals	219	182

Which gave Cleveland a majority of 37.

Late in December the Executive Committee of the National Civil-Service Reform League addressed a letter to President-elect Cleveland, commending to his care the interests of civil-service reform. Mr. Cleveland's reply, dated December 25, was as follows:

That a practical reform in the civil service is demanded is absolutely established by the fact that a statute, referred to in your communication, to secure such a result, has been passed in Congress, with the assent of both political parties; and by the further fact that a sentiment is generally prevalent among patriotic people calling for the fair and honest enforcement of the law which has been thus enacted. I regard myself pledged to this because my conception of true Democratic faith and public duty requires that this and all other statutes should be in good faith and without evasion enforced, and because in many utterances made prior to my election as President, approved by the party to which I belong and which I have no disposition to disclaim, I have in effect promised the people that this should be done.

I am not unmindful of the fact to which you refer, that many of our citizens fear that the recent party change in the national Executive may demonstrate that the abuses which have grown up in the civil service are ineradicable. I know that they are deeply rooted, and that the spoils system has been supposed to be intimately related to success in the maintenance of party organization, and I am not sure that all those who profess to be the friends of this reform will stand firmly among its advocates when they find it obstructing their way to patronage and place. But, fully appreciating the trust committed to my charge, no such consideration shall cause a relaxation on my part of an earnest effort to enforce this law.

There is a class of Government positions which are not within the letter of the civil-service statute, but which are so disconnected with the policy of an Administration that the removal therefrom of present incumbents, in my opinion, should not be made during the terms for which they were appointed, solely on partisan grounds, and for the purpose of putting in their places those who are in political accord with the appointing power. But many now holding such positions have forfeited all just claim to retention, because they have used their places for party purposes in disregard of their duty to the people, and because, instead of being decent public servants, they have proved themselves offensive partisans and unscrupulous manipulators of local party management. The lessons of the past should be unlearned, and such officials, as well as their successors, should be taught that efficiency, fitness, and devotion to public duty are the conditions of their continuance in public place, and that the quiet and unobtrusive exercise of individual political rights is the reasonable measure of their party service.

If I were addressing none but party friends, I should deem it entirely proper to remind them that, though the coming Administration is to be Democratic, due regard for the people's interest does not permit faithful party work to be always rewarded by appointment to office, and to say to them that, while Democrats may expect all proper consideration, selections for office not embraced within the civil-service rules will be based upon sufficient inquiry as to fitness, instituted by those charged with that duty, rather than upon persistent importunity or self-solicited recommendations on behalf of candidates for appointment.

When the New York Legislature assembled, January 6, 1885, Mr. Cleveland resigned the governorship of the State. (See UNITED STATES and NEW YORK.)

CLUB, a private association, of which the social element is the distinctive feature, with a common purpose and common expenses. This definition of the modern club distinguishes it from political, scientific, religious, or other societies in which the social element is secondary to the real or the professed objects of the organization.

Political clubs were very numerous and influential in France during and before the Revolution, which indeed was in great part brought about by their agency, and after which they were suppressed. The true social club, with political or artistic objects, more or less definitely pursued, has flourished in England since the time of Addison; and it is in England that the clubs of the present day have attained the most perfect development, and during the present century, though several of the English clubs are older than this.

Club-life forms an important and permanent feature of the social life of the British capital, where nearly a hundred clubs exist, with a very large and influential membership. They are entirely maintained, as a rule, by the entrance-fees and the annual dues of members. These, in the more important clubs, range respectively from $100 to $200 and from $35 to $50. For these payments the member becomes one of a carefully chosen society, numbering from a few hundred to over two thousand members in the larger clubs, which have incomes ranging from $100,000 to $150,000 per annum. He has the use and privilege of a palatial club-house, with restaurant, library, conversation-rooms, and works of art, and in addition certain opportunities that are scarcely within the reach of private fortunes, the club-houses being frequented by the most prominent men, and thus forming a social exchange that does not elsewhere exist in London, unless it be in the House of Commons, which has been wittily but not very accurately defined as "the best club in England."

In the United States, owing to the smaller number of independent and permanent fortunes and the consequent lack of a leisure class, clubs do not constitute an important feature of social life unless in a few of the larger cities. Even there few of the clubs are firmly established or free from debt, the usual reason of the pecuniary embarrassment being that the restaurant is expensively managed and poorly patronized. This feature, one of strength in the English clubs, is one of weakness in the American, mainly because of the different ideas entertained in the two countries respecting the function of the club. In England it is considered as existing to increase both the comforts and the economies of living, and it is an example of the coöperative system on a large scale in respect to the restaurant and other supplies furnished. The aim of the management is to furnish all such articles to members as nearly at cost or wholesale price as possible, making no profit out of members, but paying all the running expenses of the club by the receipts from annual and admission fees. Another system prevails in the American clubs, which generally seek to make a profit out of the members on all articles that they consume. The result of this system is a smaller membership, and consequently higher annual fees, a smaller attendance, less use of the restaurant, and consequent pecuniary embarrassment in the majority of cases. In the leading clubs, both of London and of the United States, the average admission-fee is about $140; the annual dues average about $40 and $50 respectively.

Weekly, monthly, and annual meetings are held at most of the stronger clubs; and the doors are constantly open for the accommodation of a class of members, not numerous in this country, who make a home of the club-house and pass a large part of their time within its walls.

Membership in the leading clubs is much sought after, and there is considerable diversity in the manner of the election. The leading ways of election are: 1. By ballot at a club meeting; 2. By the decision of a committee on admissions; or, 3. By ballot of the club upon such names only as are recommended by a committee on admissions. The last method is preferred in many clubs, as intrusting the investigation of the candidate's availability to a private committee charged with this duty, while yet the formal decision is made at a full meeting of the club. In this way the candidate's qualifications are more fairly and deliberately canvassed than in any other; while the name of any candidate who may fail to receive the recommendation of the committee is simply passed over without action on the part of the club, and finally dropped from the list of candidates, which is kept posted in the club-rooms. The unsuccessful candidate is thus spared the unpleasant experience of blackballing, except in the rare cases when the club rejects the recommendation of the committee.

About three fourths of the club-men of New York are married, and more than half of them are men of large professional or business responsibilities. While there are clubs in which various forms of gaming and other dissipations are permitted, yet club membership represents for the most part the best elements of the business and social life of great cities. The habits that they foster may be described as a cross between domestic life and the life of bachelors.

The clubs of Europe and America are mostly composed of men. Women's clubs and mixed clubs have been essayed both in this country and abroad, but have not as a rule been permanent. The Sorosis, the only woman's club in the United States, has had exceptional success. The *Société de l'Harmonie* of Antwerp is an old and flourishing mixed club devoted to social and musical purposes. The membership is large, but very carefully guarded; it includes entire families. The meetings are held at the club-house and garden in the suburbs of the city, where music of the highest class is performed by the orchestra of the Royal Opera three times a week. The Liederkranz of New York, a German musical club, is also a mixed club, and is strong and successful. It gives admirable private concerts under the best leadership, and has a fine club-house and musical library.

The following table includes some of the more prominent clubs of England, France, and America, and shows the main statistical points in respect to each:

AMERICAN CLUBS.

NAME OF CLUB.	Date of foundation.	Number of members.	Admission-fee.	Annual charges.	Character or objects.
American Jockey	1866	1,000		$50	Racing.
Army and Navy, New York	1871	1,000	$75	50	Social.
Authors, New York	1888	80	25	15	Social.
Buffalo, Buffalo	1867	200	25	50	Social.
Boston Art, Boston	....	750	20	15	Artistic.
Calumet, New York	1882	800	50	30	Social.
Century, New York	1846	600	100	36	Social, literary, artistic.
Cosmos, Washington	1878	200	35	25	Science, literature, and art.
Fort Orange, Albany	1879	200	50	50	Social.
Grolier, New York	1888	50	20	15	Bibliophile.
Hamilton, Brooklyn	1881	500	50	36	Social, artistic, literary.
Harvard, New York	1865	332	10	10	Harvard graduates.
Illinois, Chicago	1878	150	100	40	Social and literary.
Lotos, New York	1870	500	200	60	Social and dramatic.
Manhattan	1864	1,000	100	70	Political (Dem.) and social.
New York, New York	1845	300	100	25	Social.
New York Yacht Club, New York	1865	700	40	25	
Paletta, New York					
Papyrus, New York	....	115	10	5	Literary and artistic.
Penn, Philadelphia					
Pennsylvania, Philadelphia					
Philadelphia, Philadelphia	1834				
Saint Botolph, Boston	1880	350	30	30	Social and literary.
Saint Nicholas, New York	1875	400	100	50	Social and historical.
San Francisco, San Francisco	1852	175	200	10	Social.
Somerset, Boston	1863	600	100	100	Social.
Sorosis, New York	1868	150	10	5	Social and literary.
Twilight, New York.	1883	250	None.	None.	General discussion.
Union, Boston	1863	600	100	50	Political (Rep.).
Union, New York	1836	1,000	300	75	Social.
Union, San Francisco	1864	800	200	10	Social.
Union League, New York	1863	1,600	300	75	Political (Rep.) and business.
Union League, Philadelphia	1862	2,000	50	25	Political (Rep.).
University, New York	1865	500	100	50	College graduates.

LONDON CLUBS.

NAME OF CLUB.	Date of foundation.	Number of members.	Admission-fee.	Annual charges.	Character or objects.
			Guineas.	Guineas.	
Army and Navy	1838	2,342	40	10	Military.
Athenæum	1827	1,300	30	8	Literary and social.
Carlton	1832	1,633	20	10	Tory.
Cocoa-Tree	1746	350	5	3	Conservative.
Conservative	1840	1,200	30	10	Social.
East India United Service	1846	1,100	30	8	Military.
Garrick	1831	650	20	8	Literary and dramatic.
Oxford and Cambridge University	1830	1,170	30	7	Social.
Portland	1816	200	20	7	Social.
Reform	1834	1,400	30	10	Reform.
Saint James	1857	475	20	10	Diplomatic.
Travelers'	1819	750	40	10	Social.
Union	1822	1,000	30	7	Social.
United Service	1815	1,550	40	7	Social.
United University	1822	1,000	30	7	Social.

PARIS CLUBS.

NAME OF CLUB.	Date of foundation.	Number of members.	Admission-fee.	Annual charges.	Character or objects.
			Francs.	Francs.	
Cercle Statistique et Littéraire	1874	1,500	50	120	Artistic and literary.
Cercle des Champs-Elysées	1854	700	300	390	Social.
Cercle Franco-Américain	....	250	200	250	Social.
Cercle de la Rue Royale	1866	500	400	400	Social.
Cercle de l'Union Artistique	1863	...	300	300	Literary and artistic.
Jockey Club	1833	...	1,050	450	Social.

COCAINE, HYDROCHLORATE OF. See Drugs, New.

COLOMBIA, an independent republic of South America.

Boundary Questions.—The question of limits between Colombia and Venezuela, referred to the King of Spain for decision, was still unsettled at the close of the year. It was reported in November, 1884, that the maps of the Colombian frontiers, dating from colonial times, and executed by order of the viceroys, and purchased for $2,000 by the Government of Colombia in 1877, had disappeared from the Ministry of Foreign Affairs.

The ancient question of territorial jurisdiction with Nicaragua has again been mooted in the Colombian press, apropos of the Nicaraguan interoceanic canal project; but up to Dec. 31 no exchange of official correspondence had taken place on the subject between the Governments of the two republics.*

Area, Territorial Division, Population, etc.—A detailed statement concerning these may be found in the "Annual Cyclopædia" for 1877. In the census returns of 1870 the population was set down in round numbers at 3,000,000; and an official estimate gave it at 4,000,000 in 1881. The 3,000,000 in 1870 included 50,000 uncivilized Indians, and showed the civilized population to comprise 1,434,130 males and 1,515,870 females.

According to the census of 1884, Bogotá, the capital of the republic, had 95,813 inhabitants—44,061 males and 51,752 females. Among the trades and professions were included the following: Lawyers, 324; physicians, 126; clergymen, 152; farmers, 1,962; artisans, 20,807; artists, 230; merchants, 5,567; students, 11,621; laborers, 3,587; soldiers, 1,625; *literati*, 31.

Government, Government Officers, etc.—By the terms of the Constitution of May 8, 1863, the executive power is exercised by a President elected for two years, and the legislative power by a Senate and House of Representatives. The Senate is composed of 27 members, three for each of the nine States of the republic; and the House of 66 members, elected by universal suffrage, at the rate of one for every 50,000 inhabitants in each State, and one more for every additional 20,000. The *designados*, or substitutes, are elected each year by Congress to fill, in order of seniority, any vacancy occurring in the presidency. Each State has, besides, its own Legislature, and a chief magistrate with the title of President, except Cundinamarca, where that functionary is styled Governor.

The President of the Republic is Dr. Rafael Nuñez, whose term of office was to have begun April 1, 1884.*

The Cabinet was composed of the following ministers: Interior, M. Castro; Foreign Affairs, Eustorgis Salgar; Finance, J. M. Caro; War, Gen. José María Campo Serrano; Public Instruction, N. Barrero; Commerce and Communication, F. Angulo; Public Works, J. J. Vargas.

The chief magistrates of the several States were:

Antioquia	President T. Llano.
Bolivar	President V. Garcia.
Bayacá	President P. J. Sarmiento.
Cauca	President E. Payan.
Cundinamarca	Governor Daniel Aldana.
Magdalena	President M. S. Ramón.
Panamá	President D. Cervera.
Santander	President Gonzalez Lineros.
Tolima	President Gabriel Gonzalez.

Diplomatic and Consular Corps.—The United States Minister Resident at Bogotá is Mr. W. L. Scruggs; and the United States Consuls at Aspinwall, Barranquilla, Cartagena, Medellin, and Panama are, respectively, Messrs. F. W. Rice, T. M. Dawson, E. W. P. Smith, E. R. Edmund, and T. Adamson.

The Colombian Consul-General at New York is Señor Lino de Pombo.

Army.—The peace footing of the army, determined each year by the Legislature, was fixed at 4,000 for 1882–'83 by act of Aug. 18, 1882. The war footing is determined by the Executive as circumstances may require. On Dec. 9, 1884, in consequence of the disturbed condition of the country, President Nuñez issued a decree raising the strength of the Federal army to 8,000.

From Dec. 22, 1882, to Jan. 1, 1883, the national Treasury paid out $718,687 to the Army Department.

Education.—President Otálora, in his message to Congress on the opening of the session in February, 1884, says that the total attendance at the various establishments for public instruction throughout the republic (exclusive of those of the States of Cauca and Bolívar) during the year 1883 was 60,011—1,166 at the colleges and normal schools, and 58,845 at the primary schools. The total expenditure for the Department of Public Instruction for the year mentioned was $212,782.90.

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* See article "Nicaragua" in this volume.

* President-elect Nuñez having been absent, the presidential chair was temporarily occupied by the First Designado, General Esequiel Hurtado.

Newspapers.—No fewer than forty-five periodicals of all kinds are published in Bogotá, the capital of the republic—a goodly number for a city of less than 96,000 inhabitants, of whom only 34,500 can read and write.

In October the Conservative party, through their recognized organ, published a list of ten reforms that they considered requisite to the perfecting of the Constitution. The eighth of the proposed reforms, and one likely to provoke a storm of contention, read as follows: "We ask for universal public instruction, and that the education of our youth should have for its basis the religious belief of the people of Colombia." This reform would be the replacing of the educational system in the hands of the clergy.

Finance.—The financial condition of Colombia seems to be one of hopeless bankruptcy. The total amount of the revenue for the fiscal year ending Aug. 31, 1883, was $6,063,010, derived from the following

SOURCES OF NATIONAL INCOME.

Customs	$4,318,719
Salt-works	801,452
Panamá Railway	10,000
Bolívar Railway and Telegraph	175,839
Stamps	34,168
Post-Office	75,523
Magdalena river tax	102,077
Salt imports	72,685
Telegraphs	88,486
National properties	5,455
Mortmain properties	18,848
Mint	4,731
Sea-salt consumed in the interior	1,895
Sundries	405,132
Total	$6,063,010
Expenditure	7,517,886
Deficit	$1,454,876

"In these returns (of revenue) the Magdalena river tax, fords, and marine salt, are made to figure, although they should not appear as moneys which enter the Treasury, since each item had been previously set apart, by law, for a certain purpose. The river tax has to be expended for keeping the Magdalena and Tolima rivers clear; the salt duties belong to the Atlantic States; the fords, to the States of Tolima and Cundinamarca; and the tax on marine salt, if it is not a complete illusion, should go to the last-named States. These sums must therefore be deducted from the budget, and then we find ourselves with only $5,883,755 with which to cover all the expenses of government, meet the charges on the home and foreign debts, and other heavy liabilities. It will also be observed that the river taxes represent but a trifling sum. This arises from the fact that the accounts had not been sent in by the employés intrusted with the control of that department. The amount of that tax has been more accurately reported at $218,555. Similar obscurity is observable in the returns of customs receipts, salt-works, coinage dues, national properties, salt imports, and stamps, as respectively made by the receiving and disbursing ministers, and which show scandalous discrepancies, to the amount of $139,526, which I fail to comprehend." *

In the budget estimates for 1884–'85 the revenue and expenditure figured at $6,182,920.75 and $6,236,905.60, "with, of course, a deficit, but, after all, a deficit reduced to insignificant proportions"—$53,984.85. "In preparing the budget, the Government has had in view the laudable aim of establishing an equilibrium between the national income and outlay. But that is not the most difficult that awaits the Congress of 1884; it has before it the very arduous one of organizing the country's credit upon a firm basis. The Legislature should be stimulated by the reflection that so long as Colombia neglects her credit abroad, she will not be able to gather means for the building of rail and other roads requisite for the development of her public and private resources; and that so long as the home debt continues to be a permanent debt of the Treasury, the palace of San Cárlo will be continually besieged by creditors." "In 1881 Congress cost $180,134," says a Bogotá journal; "in 1882 it cost $250,889; and in 1883, $338,669. At this rate, within four years it will cost $1,000,000, and meanwhile poverty is universal, and our credit at home and abroad grows worse daily." A decree, dated Dec. 19, 1883, increases to 75 cents per kilogramme the import duty on all articles of Class V of the tariff.

The condition of the national finances had become so alarming in March, 1884, that the Senate, not content with the exposition contained in the President's message, demanded of the Ministers of the Treasury and of Finance a minute report of their respective departments, to be submitted for examination to the *Comisión de Crédito Público* (Committee on Ways and Means), with a view to the passage of a law to enforce regularity in the service of the national debt.

The state of this debt, as presented by President Otálora in February, was as follows:

Capital of the foreign debt		$9,570,500 00
Arrears of interest:		
1878–'80	$781,634 00	
1880–'82	908,912 00	
1882–'83	454,456 00	
		2,095,052 00
Total foreign debt Dec. 31, 1883		$11,665,552 00
Home debt		10,340,883 85
Total national debt Dec. 31, 1883		$22,006,435 85

The ministers' reports, when presented, were found to be no more satisfactory than the President's statement, and the Senate then resolved upon another and more efficient course of inquiry into the causes of the evil, in order to have the suitable remedy applied without further delay. Among other expedients suggested was that of the consolidation of the home debt, which measure, with a general system of economy consistent with wise administration, would, it was expected, place the Government in a position to meet its obligations without having recourse to alternatives fatal to the credit or prejudicial to the industry of the republic. Appropriating one million to the payment of interest on the whole debt (should the proposed consolidation of the home debt be effected), and another million for the works of improvement already begun, there would remain four millions with which to cover the expenses of the Government.

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* From Mr. Groot's review for February, 1884, published in Bogotá.

The following remarks are transcribed from the annual report of the Council of Foreign Bondholders, published in London, February, 1884: "The Council regret that they are obliged to report that another year has passed without any decided step being taken by Colombia to restore her credit in this country, and that no serious attempt has been made to resume payment on the external debt. Some months ago a special commissioner was sent to Europe to open negotiations, one object of his mission being to obtain, if possible, a loan for the carrying out of railway works, of which Colombia stands much in need. He has now, however, been recalled, and the negotiations toward which an approach was made by him, for an arrangement of the 4½ per cent. debt, are consequently at a stand-still, pending the arrival of his successor, who, the Council learn from an authentic source, has been appointed as Minister Plenipotentiary to this country, and who, it is stated, will bear all the necessary instructions for negotiations to effect an arrangement."

On Oct. 1, 1884, the returns for August from the custom-houses had not yet reached the capital; but, estimating from the previous eleven months, from September, 1883, to Aug. 1, 1884, when the receipts amounted to $3,500,322, it was presumed that the revenue from that source for the whole fiscal year would reach $3,818,533, which would show a diminution of $541,879, as compared with the years 1882–'83. A loan had been ordered, and under that law $500,000 would "at once be raised at 12 per cent. per annum—the bonds being receivable in all Government offices in the proportion of one fifth of all payments." A loan of $1,000,000 was also to be effected, at par, the bonds to bear interest at 12 per cent. A law had been passed establishing custom-houses in Panama, Colon (Aspinwall), Branca, and Orucué, where duties were to be collected at 40 per cent. less than the actual tariff rates.

Commerce.—"The decadence of our commercial transactions," writes a native economist in October, 1884, "which results from the low prices realized by our few articles of export which can be conveyed at a profit to the coast over our horrible roads, the scarcity of manufacturing industries, owing to the impossibility of transporting ponderous machinery into the interior, and the fact that agricultural operations are limited to the supply of mere local wants, are the undoubted causes of the extreme poverty of the nation. Work not being profitable, pauperism is engendered, and the love of dabbling in politics ruins all efforts toward social improvement." The foreign trade of the republic for the year 1882–'83 was of the total value of $26,361,198 (of which amount $11,504,028 represented the imports), against $30,869,671 for 1881–'82 (imports $12,355,555; exports, $18,514,116).

The value of the exports to the United States in 1883 was $5,171,475; and that of the imports therefrom, $6,868,971,* showing a balance of $1,697,496 in favor of the latter country.

The exports to Great Britain and the imports therefrom in 1882 were of the respective values of $5,601,850 and $5,083,040.

The exports from Sabanilla for the year 1883 amounted to $6,912,889, and included the following articles: Peruvian bark, $3,036,300; hides, $1,162,000; coffee, $1,456,820; ores, $574,020; tobacco, $247,040; India-rubber, $80,130; ivory-nuts, $71,110; Panama hats, $60,000; plants, $57,420; balsam, $52,740; cigars, $44,500; deer-skins, $21,000; dividivi, $14,839; goat-skins, $6,270; indigo, $4,620; cotton, $4,570; sarsaparilla, $960, etc. Of these exports, the largest share was taken by Great Britain ($3,096,800); the United States received $2,576,385 worth; France, about $724,000; Germany, $465,000.

The exports from Cartagena during the septennial period 1877–'83 were as below:

YEARS.	Values.	YEARS.	Values.
1877	$801,670	1881	$1,264,689
1878	986,786	1882	1,862,228
1879	832,224	1883	1,677,971
1880	1,154,795		

The principal staples shipped from that port in 1883 were: Cattle (23,962 head), $579,422; India-rubber, $371,135; ivory-nuts, $149,807; hides, $118,202; mora-wood, $90,554; tobacco, $80,501; balsam, $49,582; coffee, $35,061. The shipments of cattle, unusually large in the year mentioned, were divided between Cuba and the Isthmus of Panama—21,906 head to the former, and 2,056 to the latter. The ivory-nuts were tolerably evenly distributed between Great Britain, Germany, and the United States, while this last country took by far the largest proportion of the hides and coffee.

With the opening of the *digue*, the commerce of Cartagena would, it is asserted, increase very materially, but at the expense of the river-port of Barranquilla.

In the official report of the commerce of Mexico for the quarter ending March, 1883, figure exports to Colombia of the value of $116,367.50, of which $106,843.65 was for precious metals.

In regard to national industries, the most noteworthy incident of the year was the manufacture, at the Pradera Iron-Works, of the first rails produced in the republic.

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* Including $149,184 for merchandise not produced in, but re-exported from, the United States.

Mines.—In a *résumé* of the yield of the gold-mines of the world for the year 1882, Colombia occupied the fourth place in order of American countries, as follows: United States, $32,400,000; British colonies, $3,000,000; Brazil, $850,000; Colombia, $800,000. The yield of her silver-mines in the same year was $200,000. The famous emerald-mines of Muzo and Cozency were leased by the government of the State of Boyacá to Señor Lorenzo Merino at an annual rental of $25,000, the lessee agreeing to make two yearly payments in advance. An emerald of the gross weight of one pound was extracted from the Muzo mines in 1884.

Port Movements.—There were entered at the various ports of the republic in the year 1882–'83: Steamers, 588, aggregating 668,718 tons; sailing-vessels, 923, with an aggregate of 40,462 tons.

The movement at the port of Cartagena in 1883 aggregated 19,600 tons.

The Magdalena river, flowing into the Atlantic at the port of Sabanilla, and receiving, besides the waters of the Cauca and Sogamoso, those of numerous minor streams, is the great commercial artery of the republic, and may be said to command the trade of eight of the nine States of the Colombian Union. The carrying-trade of the lower Magdalena was carried on, in 1884, by thirteen steamers. Several of its smaller tributaries, not suitable for steamers, are navigated by other craft, doing a fair carrying-trade. Navigation on the Cauca is attracting attention, and a new interest will be thrown over the valley of that river by the colonization scheme projected by the canal company under the auspices of the brother-in-law of M. de Lesseps.

Railways.—The following lines were opened to traffic or in course of construction in 1884:

LINES.	Length, in miles.	Number of miles open to traffic.
Panama Railway	47	47
Bolivar Railway	15	15
Cúcuta and Puerto Villamizar Railway	84	22½
Buenaventura and Córdobas Railway	12	12
Puerto Berrio and Zaboletas Railway	20	20
Girardot and Tocaima Railway	18	18
Line near Honda*	4½	4½
Totals	150½	139

Telegraphy.—On March 1, 1884, the telegraph lines throughout the republic were of the total length of 2,400 miles. The cost of the department for the year 1883 was $133,696, and the yield but $63,407, leaving a deficit of $70,209. The number of telegrams for 1882–'83 was 288,876, and the length of lines 2,357 miles.

Post-Office.—The number of letters transmitted through the post-office in 1882–'83 was 560,000. The cost of the department in 1884 was $149,981, and the yield, $111,698; deficit, $938,283.

Panama Canal.—The following statements concerning the financial situation of the company and the progress of the work are extracted from the annual report of Ferdinand de Lesseps and the council of administration upon the Panama Canal, delivered July 24, 1884:

FINANCES.	Francs.
All expenditures for work proper upon the canal to June 30, 1883	108,418,097
Machinery and real estate, the purchase of 68,534 shares of the Panama Railway, and incidental expenses	120,291,228
Total ($45,741,565)	228,709,325
Deducting from this unpaid debts and rediscounts, etc	17,679,548
Total net expenses to June 30, 1883 ($42,205,955)	211,029,777
As, against this outlay, there is the product of 250,000 shares at 5 per cent., issued in September, 1882, and other incomes, amounting to	416,655,760
Deducting the expenditures	211,029,777
Amount disposable on June 30, 1883 ($41,125,126)	205,725,983
This last sum can be subdivided into assets on shares, not called	147,500,000
Capital in treasury	58,125,983
Total as above	205,625,983

Since then, in the midst of trying financial times, there has been issued with complete success 600,000 bonds of 500 francs each, at 3 per cent., payable in installments, of which the last two mature in August and October of this year. Of the 800,000,000 francs last authorized, there is a reserve in bonds of $129,000,000 francs.

Panama Railway.—The Panama Railway has been put in thorough repair, new depots and shops built, and rolling-stock added. Instead of eight trains daily, as in 1882, twenty-two trains now pass over the line. The dividend on the stock, which was 12½ per cent. in 1882, was 15 per cent. in 1883, and will probably reach 16 to 17 per cent. in 1884. The company own 68,534 shares out of the total of 70,000 shares.

Sanitary Condition of Laborers.—No pains have been spared in caring for the health of the workmen, and the organization of the medical service has been made thorough and complete. During 1883–'84 the cost per patient has been 5·72 francs per day at Panama, and 7·52 at Aspinwall. With from 7,000 to 10,000 men at work, the mortality rate was about 3 per 1,000 to September, 1883; with from 11,000 to 16,000, it was about 5·50 per 1,000 to April, 1884; and with from 18,000 to 19,000 men employed during the last two months, it was about 3 per 1,000.

Progress of the Works.—The programme of operations fixed, adopted by M. Dingler, and approved by the consulting committee of engineers, was as follows:

1. Construction of the canal with a normal depth of nine metres (29·52 feet) below the mean sea-level.

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* To avoid the rapids at that point of Magdalena river.

2. Width of the bottom of the canal twenty-two metres (72·16 feet).

3. A direct cut from sea to sea, open to the sky throughout its entire length.

4. A lock with tide-gates at Panama, to insure communication with the Pacific at any hour and under any condition of tides and temporary currents.

5. The creation of immense harbors at Aspinwall and Panama.

6. The excavation of a grand side-basin, five kilometres (3·1 miles) long, about the central point of the canal, near Tabernilla, to facilitate the passage of ships in either direction.

7. The dam at Gamboa, for the regulation of the flood-waters of the Chagres, with diverting channels for that stream.

This programme means a total of 143,880,000 cubic yards of earthwork for the digging of the canal proper, and the enlargement of the ports at either end sufficiently for traffic.

The work of changing the course of the Chagres is equivalent to a total of 13,080,000 cubic yards. In the original estimate the digging of the canal was put down at 98,100,000 cubic yards, with the expectation that this could be reduced to 95,466,688 cubic yards, But, as work has progressed, we find in one portion a smaller quantity of hard rock than estimated; on the other hand, a greater quantity of earth capable of being moved by cheaper processes; the economy in time resulting from this improved condition will, in some degree, compensate for the extra amount to be moved.

The progress achieved may be stated as follows:

	Cubic yards.
Work done previous to Jan. 1, 1884	3,610,779
Work done in the first four months of 1884	3,217,460
Total work done to May 1, 1884	6,858,239

The actual cube of work done in the first four months of 1884 almost equals the total previous work done to Jan. 1, 1884. This progress, slow but sure, sacrificing nothing to effect, is in accordance with the resolutions made at the organization of the company.

The working force, consisting of 6,200 men in the previous year, has now been increased to 19,000; and any number required can at all times be drawn from the West Indies.

M. Dingler, the director-general of the works, estimates that, of the 143,880,000 cubic yards to be removed in digging the canal, 52,320,000 can be raised by dredge—the most economical and expeditious method. Including the trenches at the Chagres river, 13,080,000 cubic yards, there would remain 104,640,000 cubic yards to be removed dry, and for the extraction of which we have machinery of the following capabilities per month:

Each large car, allowing for loss of time, 294 cubic yards.

Each Decanville car, 130 cubic yards.

Each transporter, 39,240 cubic yards.

Hence, 4,500 large, and 4,000 Decanville cars, with 20 transporters, will give a monthly total of 2,616,000 cubic yards. Now, each of the 40 dredges, without counting the 4 small 60-horse power dredges, will give an annual total of 654,000 cubic yards. The dry work, with the material above mentioned, is calculated to require three years for its completion; and the dredges will accomplish their work in two. Hence, had the dry work been only commenced on Jan. 1, 1885, and the dredging one year later, the canal could be finished by Jan. 1, 1888.

Politics.—The sessions of the Legislature, which opened on Feb. 1, 1884, were closed on September 30th, and the following day the Assemblies met in Boyacá, Cundinamarca, and Panamá. The maintenance of peace was the chief object of the Government during the month mentioned. In the State of Santander civil war seemed imminent, but was averted by the interference of the Federal Government. Meantime the revolutionary tempest had broken out in Cundinamarca, but martial law was not immediately proclaimed in that State, the national Government, which is extremely popular, deeming it expedient to "trust to the reflection and patriotism of the contending parties," rather than appeal to extreme measures of repression. Disturbance was reported at Panamá, conspiracy reigned openly in Cauca and Magdalena, and somber clouds overhung the State of Bolivar. Peace, however, was re-established; the rebels suspended hostilities; but impunity, it was apprehended, not without reason, would encourage reaction—"the outcome of so much debility" and supineness. "Only a truce had been signed; the revolutionary element remained still in full force, and blood had been uselessly spilled." The storm, indeed, was not past; after a brief calm, it burst forth anew more violent than before. Advices from Panamá under date of Jan. 5, 1885, announced "a most alarming condition of affairs throughout the republic, and the imminence of a general conflict." Civil war had again broken out in Boyacá, Cundinamarca, Magdalena, and Santander, and its reappearance in Cauca was apprehended. The remote object had in view by the rebels is, of course, the overthrow of the existing government; the immediate cause of uprising is best expressed by the closing paragraph of President Nuñez's message of September 25: "The very foundations of the country are undermined. Revolutions are become a safe and lucrative profession. They are seen approaching, followed by their somber train of misfortunes; and, although the means of impeding their dismal development may be at hand, the institutions at present in force are opposed to the use of those means. The Government, therefore, has to live with shouldered arms, awaiting the hour for battle—battle that decimates our population, swallows up our wealth, increases our public discredit, and forcibly recalls to our minds the words of Bolivar: 'Those who toiled for independence have plowed in the deep.'" The so-called Radical party has joined a fraction of the Conservatives, and thus united, both are aiming at the downfall of the Liberals in the States most devoted to the Nuñez administration. Should they succeed thus far, their intention is then to concentrate their forces in an attempt to overthrow the Federal Government.

On Jan. 2, 1885, President Nuñez telegraphed as follows: "The remaining rebel forces sought asylum in Boyacá without having fought. They reached Tunja on the 22d, and they are now surrounded by 3,000 men. All munitions had been moved to Zipaquirá in advance, owing to the efforts and energy of Gen. Morgan, who for this reason has been raised to the rank of general. The revolutionists have asked for an armistice. Here, and in Sabana and Zipaquirá, we have strong reserves." The movement, if once successful in Boyacá, would acquire an impetus difficult to overcome. The *Conservador*, of Bogotá, expressed the fear that disturbance would become general throughout the republic.

COLORADO. State Government.—The State officers during the year were the following: Governor, James B. Grant, Democrat; Lieutenant-Governor, William H. Meyer; Secretary of State, Melvin Edwards; Treasurer, Frederick Walsen; Auditor, John C. Abbott; Attorney-General, David F. Urmy; Superintendent of Public Instruction, Joseph C. Shattuck. Supreme Court: Chief-Justice, William E. Beck; Associates, Joseph C. Helm and W. F. Stone.

Finances.—The condition of the Treasury on Nov. 30, 1884, was as follows:

Outstanding warrants	$454,112 80
Certificates of indebtedness	61,794 96
Total	$515,907 76
Cash in Treasury	$378,267 85
Cash invested in State warrants	134,867 76
Amount due Jan. 1, 1885, general revenues	404,862 55
Total	$917,998 16
Excess over liability	$402,091 40

This is the showing on the face of the books, but the actual indebtedness of the State, which should be paid at once, is as follows:

Outstanding warrants	$454,142 80
Certificates of indebtedness	61,794 96
Estimated interest on the same	29,841 00
Deficiency at Insane Asylum	25,718 00
Deficiency at Industrial School	20,000 00
Total present liabilities	$590,996 76
Due Jan. 1, 1885, general revenue (tax 1884)	$404,862 55
Back taxes	143,031 66
Total	$547,894 21

The Auditor estimates that not more than $455,000 of this amount will be collected, $30,000 of which will be applied on outstanding loco certificates, leaving $425,000 to be applied on the indebtedness of $590,996.76. This shows a deficiency of resources to meet present indebtedness of $165,996.76. This indebtedness can be met without either borrowing money or increasing the State tax.

The permanent school fund at the present time amounts to	$114,220 04
Permanent university fund	28,339 75
Total	$142,559 79

The total assessed valuation of property in 1884 was $115,675,014.51; in 1883, $110,759,756.21; number of military polls in 1884, 31,653; in 1883, 27,600. The railroad assessment in 1884 amounted to $19,923,425.05.

Corporations.—The Insurance Department has yielded a net revenue to the public-school fund of $13,025.55 during the past two years. The number of companies authorized to do business in the State is 105. The Auditor represents that all spurious companies have been prohibited from doing business in the State, and that the insurance business is now on a safe basis.

During the past two years 1,058 articles of incorporation have been filed with the Secretary of State, and spread upon the records of the office.

Capitol Building.—The Legislature of 1883 authorized the construction of a Capitol building, and appointed a Board of Managers to carry out the provisions of said law. The law was framed and passed hurriedly, and seems to have been very imperfectly adapted to the purposes for which it was intended. The Board of Managers decided that it would be impossible to construct the building and do justice to the State without violating the provisions of the act under which they had been appointed. The commissioners have drafted a bill for submission to the Legislature of 1885, under the provisions of which the Capitol can be built without embarrassing the State in any way. It contemplates that the construction shall cover a period of five years, and that the final cost shall not exceed $1,000,000. The following resources for the construction of the Capitol can be made immediately available:

Capitol building fund, cash	$184,195 50
Public building fund, cash	20,062 82
Due Jan. 1, 1885, half-mill tax	57,800 00
Total cash	$212,058 32
Bonds voted in 1883	300,000 00
Immediately available	512,058 32
Half-mill tax for five years (estimated)	300,000 00
Total	$812,058 32

"This leaves," says the Governor, "only $200,000 to be provided for. The Constitution prohibits the levying of any tax in excess of one half mill on the dollar per annum for a Capitol building. But it does not prohibit the appropriation of any surplus in the Treasury, to the credit of the general revenue fund, for this purpose. The demands upon the general revenue fund can be lessened, and a surplus created by supporting the Penitentiary by a direct tax levy, instead of by appropriation from the general revenue fund, as is now done."

By an act passed by the last Legislature the electors were called upon, at the election in November, 1883, to pass upon the question of voting $300,000 in bonds for the Capitol building. The vote resulted in the authorizing of the bonds by a majority of 4,537.

Penitentiary.—On Nov. 30, 1884, there were 372 convicts in the Penitentiary. The total expense for the past two years has been as follows:

Maintenance of prisoners	$167,464 28
Stable account	6,517 75
Expense of brick-yard and quarries	11,767 96
West cell-building	20,000 00
Purchase of land	5,500 00
Gate	362 15
Improvement and repairs	9,915 81
Sundries	348 33
Total	$221,876 28

The improvements for the past two years are estimated at $52,000, consisting of cell-building, female prison, bath-house, kitchen, laundry, extension of walls, etc.

The earnings for the past two years have been $50,405.83, while shows a decrease of $9,381.31 from the two previous years. This decrease is due to the general depression of business, causing a falling off in the demand for lime, and to the passage of an act by the last Legislature, restricting convict-labor to the prison-grounds, and to the failure of those engaged in the manufacture of boots and shoes with convict-labor to carry out their contract.

Insane Asylum.—The new Insane Asylum has been occupied by the male patients since Nov. 20, 1883. The main building is 320 feet long by 100 feet in depth, with two dormitories 64 by 28 feet, and three stories in height. The east wing is designed for the male patients, and the west wing for the females; each wing is divided into three wards; each ward will accommodate 35 patients, so that the building when completed will accommodate over 200 patients. In the east wing two wards have been furnished, and are now occupied by 70 male patients. The third ward has been completed, but is not furnished. The west wing has not been completed.

On Nov. 30, 1882, there were 49 patients at the asylum; since then 125 have been admitted—making a total of 177 treated in the two years ending Nov. 30, 1884. Of this number, 77 have been discharged, 53 having recovered, 1 improved, 3 escaped, and 20 having died, leaving 97 at the asylum at the present time—being an increase of 48 since 1882.

The maintenance expenses for the two years ending Nov. 30, 1884, amounted to $55,676.78. The entire sum expended on the new building so far is as follows:

In 1881 and 1882	$55,000 00
In 1883 and 1884	83,146 90
Outstanding indebtedness	25,718 00
Total	$163,864 90
Estimated cost of completing and furnishing west wing	$20,000 00

Mute and Blind Institute.—The last Legislature appropriated $6,000 to complete the third story of the Institute building, which has been done. During the past two years provision has been made for instructing the blind. There are now 10 blind children and 37 deaf-mutes at the Institute.

State Industrial School.—There were 75 boys at the school in November, 1882. By Jan. 1, 1884, this number had increased to 140.

There have been 196 boys sent to the school since it was established.

On a basis of 150 boys a day, the trustees ask for the following appropriations for the two years ending Jan. 1, 1887:

150 boys at 80 cents per day each	$35,040
Officers' salaries and expense of trustees	15,250
Fuel and lights	2,250
Repairs and improvements	10,000
Water-works and library	1,250
Total	$63,790
Existing deficiency	20,000
Grand total	$83,790

Irrigation.—The State Engineer represents that the total appropriation of water in the State amounts to 48,546 cubic feet a second. One cubic foot of water a second will irrigate about fifty acres of land, and is estimated to be worth $750. On this basis the water rights of the State have a value of over $30,000,000. The present ditch capacity is sufficient to irrigate 2,000,000 acres of land. As the land under ditch is not worth over $12 an acre, it will be seen that water in Colorado is more valuable than the land.

The Governor recommends the perfecting of the laws relating to irrigation and water rights, and the protection of the forests of the State.

State Lands.—Exclusive of public-school lands, which embrace every sixteenth and thirty-sixth section, except mineral lands, the following lands have been given to the State by the General Government:

GRANT.	Acres.
Internal improvement	500,000
University	46,060
Penitentiary	32,000
Public building	32,000
Saline	18,836
Agricultural College	90,000
Total acres donated	718,916

The following amounts have been selected and confirmed in the different funds:

GRANT.	Acres.
Internal improvement	492,360
University	44,841
Penitentiary	25,227
Public building	29,146
Saline	18,836
Total acres confirmed	610,410

The present Land Board have selected 52,954 acres of the Agricultural College grant, and have forwarded a description of the same to the proper authorities at Washington for confirmation.

The total number of leases now in force is 967, embracing 577,857 acres, at an annual rental of $29,178.34.

The total receipts from land-sales and leases in 1881 and 1882 were $112,184.04; the total receipts from land-sales and leases for the two years ending Nov. 30, 1884, $289,508.89, an increase of $127,324.85 in the past two years.

Cattle.—The following is the number of cattle inspected during 1884:

	Number of cars.	Number of head.
Kansas City	10,233	223,102
Omaha and Council Bluffs	5,560	108,700
Pacific Junction	833	17,623
Denver	....	35,810
Pueblo	....	32,064
Leadville	....	6,163
San Luis Valley	....	507
Total number inspected	16,626	423,969

There has been shipped East from Colorado during the past season and inspected at the following points:

Kansas City	28,210
Pacific Junction	14,286
Omaha and Council Bluffs	9,564
Denver	1,972
Pueblo	842
Total number shipped from Colorado during 1884	54,874

The above number does not include all the cattle shipped from the State to the Eastern markets, as part of the cattle shipped from some of the northern counties were sent over the Union Pacific, also some shipped from the South were driven into Kansas.

Coal.—There is no extended portion of Colorado that has no coal-deposits of its own or which could not be readily supplied with coal. The number of men employed in and around the coal-mines of Colorado is about 2,500, over one fourth of whom work in Fremont County. The product steadily increased from 1873, when the output was 69,977 tons, to the year ending July 31, 1884, when the total estimated output was 1,352,873 tons. In consequence of a strike, the coal product almost entirely ceased for several weeks in some localities, and the Colorado Coal and Iron Company's mines at Coal Creek, in Fremont County, were closed from about the 1st of August until the latter part of December.

Boulder County is one of the leading counties in the number and product of its coal mines. There are eight mines in that county, and they are worked largely with the view of supplying the Denver market. The output for the year ending July 31, 1884, was 202,657 tons. The Boulder coal is lignite.

In El Paso County only one mine was worked during the year. The output was 36,518 tons.

One of the great coal-mining counties of Colorado is Fremont. The total product of all the mines was, for the year ending July 31, 302,616 tons.

In Gunnison County there are six regular mines, which in the last statistical year produced 36,940 tons. There are several varieties of coal in Gunnison County, one of the mines producing an excellent quality of anthracite. The product in tons of anthracite was 13,241.

In Huerfano County there are three mines. The output was 31,386 tons for the last statistical year.

In Jefferson County there are eleven mines, but, as the majority of them were shut down or were not included under the mining law, the product of the county is small. It amounted, according to McNeil's report, to 13,792 tons.

In Las Animas County there are two working mines, and last year they produced 450,266 tons of coal. The coal in that county is bituminous, and is noted for its coking qualities. In addition to the two mines referred to above, there are small openings in Las Animas County working from four to fifteen men.

In Park County there is but one mine of importance, it being the Union Pacific mine at Como. The quality of the coal is semi-bituminous, and the product during the last statistical year was 58,997 tons.

In Weld County there are five mines, and their combined product was 51,874 tons.

With the exception of those in Gunnison County, all the mines mentioned above are in what is called eastern Colorado, that part of the State which lies east of the main range. But across the Divide—in western Colorado—there is a vast country the coal area of which is probably more extensive than that of the eastern part of the State, and which in the quality of its coal product rivals Pennsylvania. That great country embraces Gunnison County.

Bullion.—The product of bullion in three years has been as follows: In 1882, $25,933,365; in 1883, $24,319,000; in 1884, $20,233,749.

Election.—The election on the 4th of November resulted in favor of the Republicans. The vote for Governor was as follows:

Benjamin H. Eaton	33,845	J. E. Washburn	2,104
Alva Adams	30,718	Scattering	17

The other State officers chosen were the following: Lieutenant-Governor, Peter W. Breene; Secretary of State, Melvin Edwards; Treasurer, George R. Swallow; Auditor, H. A. Spruance; Attorney-General, Theodore H. Thomas; Superintendent of Schools, L. S. Cornell; Regents of the University, Roger W. Woodbury, Clinton M. Tyler, and Joseph C. Shattuck. For Congressman, the vote was as follows: George G. Symes, Republican, 35,446; Charles S. Thomas, Democrat, 28,720; George W. Way, Greenback-Labor, 2,435. The average vote for presidential electors was: Republican, 36,277; Democratic, 27,627; Greenback-Labor, 1,957; Prohibition, 759. The Legislature is largely Republican. Three amendments to the Constitution were ratified by large majorities. The amended sections read as follows:

> SEC. 6. Each member of the General Assembly, until otherwise provided by law, shall receive as compensation for his services, seven dollars ($7) for each day's attendance and fifteen (15) cents for each mile necessarily traveled in going to and returning from the seat of government, and shall receive no other compensation, perquisite, or allowance whatsoever. No session of the General Assembly shall exceed ninety days. No General Assembly shall fix its own compensation.
>
> SEC. 19. No act of the General Assembly shall take effect until ninety days after its passage (except in case of emergency, which shall be expressed in the act), [unless] the General Assembly shall by a vote of two thirds of all the members elected to each house other-

wise direct. No bill, except the general appropriation bill for the expenses of the government only, introduced in either house of the General Assembly after the first thirty days of the session, shall become a law.

SEC. 22. Every bill shall be read by title when introduced, and at length on two different days in each house; all substantial amendments made thereto shall be printed for the use of the members before the final vote is taken on the bill, and no bill shall become a law except by a vote of a majority of all the members elected to each house, nor unless on its final passage the vote be taken by yeas and nays, and the names of those voting be entered on the journal.

COMMERCE AND NAVIGATION, AMERICAN. The total value of the foreign commerce of the United States in the year ending June 30, 1884, was $1,408,211,302, against $1,547,020,316 in 1882–'83 and $1,475,181,831 in 1881–'82. The following is a comparative statement of the annual values of the total exports and imports for the past ten years:

YEAR.	Imports.	Domestic exports.	Foreign exports.
1875	$533,005,436	$499,284,100	$14,158,611
1876	460,741,190	525,582,247	14,802,424
1877	451,323,126	589,670,224	12,804,996
1878	437,051,532	680,709,268	14,156,498
1879	445,777,775	698,340,790	12,098,651
1880	667,954,746	823,946,353	11,692,305
1881	642,664,628	883,925,947	18,451,399
1882	724,639,574	733,239,732	17,302,525
1883	723,180,914	804,223,632	19,615,770
1884	667,697,693	724,964,852	15,548,757

The total value of gold and silver coin and bullion imported and exported, and the annual net exports or imports of specie, were as follow:

YEAR.	Exports.	Imports.	Excess of exports.
1875	$92,132,142	$20,900,717	$71,231,425
1876	56,506,302	15,936,681	40,569,621
1877	56,162,237	40,774,414	15,387,823
1878	33,740,125	29,821,314	3,918,811
1879	24,997,441	20,296,000	4,701,441
1880	17,142,919	93,034,310	75,891,391*
1881	19,406,847	110,575,497	91,168,650*
1882	49,417,479	42,472,390	6,945,089
1883	31,820,333	23,489,391	8,330,942
1884	61,345,630	37,426,262	23,919,368

In common with other commercial nations, the United States suffered a partial depression in 1884, which affected the volume of foreign trade. The depression was mainly the result of the extension of production in many countries beyond consumptive requirements, and of agricultural depression in Europe. Since the Franco-German War, Germany and other Continental countries have largely extended their manufacturing facilities. Cheaper labor and new chemical and mechanical inventions enable them to compete successfully with English and French industries. New employments and profits counterbalance the effects of crop failures, while in western Europe accumulated wealth retards the effects of poor harvests and industrial competition. In the United States the extension of the area of cultivation and of railroads was stimulated by the extraordinary European demand for food. Under the same impulse, but more tardily, agricultural production in India, Australia, and other countries was stimulated. The abundant crops and high prices during the years of European dearth incited manufacturing enterprise as well as the extension of agriculture and railroads. The return of good seasons in Europe and the competition of India and eastern Europe caused a great fall in the price of grain. The consequent collapse of railroad enterprise and the cessation of ship-building in Great Britain resulted in a general stagnation in the iron and coal industries. Under a diminished demand the over-supplied markets of both hemispheres in many branches of manufacture broke down. Wide-spread depression and contraction of business reacted on the price of cotton and other raw products of the United States. Petroleum sank in price from excessive production and from the competition in some foreign markets of the Russian article. New protective measures adopted in certain countries for suffering agricultural and manufacturing industries affected international exchanges unfavorably. The United States, being a debtor nation, contracts its demand for foreign products readily in response to a diminished export. From the above causes the import and the export trade of 1884 showed in important articles a decline in quantities, and in nearly all a marked falling away in values.

Imports.—Taking due account of the contraction of trade springing from general causes, the imports of 1884 show in comparison with those of 1883 the effect of the tariff revision enacted by Congress March 3, 1883. The average ad-valorem rate of duty collected on dutiable merchandise was reduced from 42·64 per cent. in 1883 to 41·70 per cent. in 1884. The exemption from duty of the charges of importation and the transfer to the free list of various duty-paying articles effected a much larger reduction, which amounted, in 1884, although many articles paying specific duties fell in price, to about 5 per cent. The most important commodities affected by the tariff are sugar, which yielded, in 1884, 25·77 per cent. of the total customs revenue; wool, and manufactures thereof, which produced 16·86 per cent. of the total duties; silk manufactures, which produced 9·99 per cent.; iron and steel, and manufactures thereof, which produced 7·80 per cent.; cotton manufactures, which produced 6·05 per cent.; and flax, hemp, jute, and manufactures thereof, which produced 4·96 per cent. The total amount of duty collected on imports entered for consumption declined from $210,637,293 in the fiscal year 1883 to $190,282,836 in 1884, a fall of 9·7 per cent. The change in the average rate of duty on the total imports, dutiable and free, was from 30·05 to 28·50 per cent. The new tariff increased the average rate on sugar and melada from 52·88 to 53·94 per cent. ad-valorem; decreased the average rate on iron and steel, and manufactures thereof, from 37·52 to 34·48 per cent.; reduced the rate on clothing-wools from 56·28 to 44·92 per cent., on combing-wools from 51·22 to 42·65 per cent., on carpet-wools from 27·84 to 25·02 per cent., and on woolen manufactures from 68·49 to 66·23 per cent.; increased the rate on cotton manufactures from 37·44 to 40·09 per cent.; decreased the rate on silk manufactures from 59·01 to 49·86 per cent.; increased the average rates on chinaware and earthenware from 43·10 to 57·66 per cent.; increased the rates on glass and glassware from 55·05 to 55·68 per cent.; increased the average ad-valorem rates on spirits and wine from 69·45 to 84·37 per cent.; and also increased the average ad-valorem rates on malt liquors from 44·59 to 47·64 per cent.

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* Excess of imports.

The following table exhibits the values of articles of imported merchandise that were entered for consumption in the fiscal years 1883 and 1884:

ARTICLES.	1883.	1884.
FREE OF DUTY:		
Animals, living	$3,352,886	$5,119,451
Products of the United States returned	6,858,968	1,812,098
Barrels exported with petroleum returned	....	3,636,283
Art-works of American artists	296,962	485,737
Asphaltum, or bitumen, crude	....	160,277*
Bolting-cloths	418,637	392,469
Books and other printed matter	500,726	861,706
Chemicals, drugs, and dyes	27,625,659	25,585,409
Cocoa, or cacao, crude	1,129,471	1,678,068
Coffee	42,051,257	49,685,689
Cork-wood, or cork-bark	984,427	985,871
Cotton, unmanufactured	802,248	1,332,514
Diamond-dust and diamonds, rough	526,624	427,145
Eggs	2,677,627	2,677,223
Farinaceous substances and preparations	268,986	627,169
Feathers and downs	278,568	881,862
Fertilizers	1,790,062	1,851,279
Fish	3,121,179	3,642,616
Fruits, including nuts	1,080,188	3,487,052
Furs and fur-skins, undressed	2,964,406	2,524,952
Hair	1,422,960	1,940.981
Hide-cuttings and glue-stock	215,415	296,788
Hides and skins	27,745,697	22,301,484
Household and personal effects of persons arriving in the United States	2,395,217	2,277,463
India-rubber and gutta-percha, crude	.15,512,091	13,736,745
Ivory, animal and vegetable	880,818	957,368
Oils	1,564,680	2,057,292
Ores	65,158	812,570
Paper-stock, crude	5,387,501	5,654,575
Plants, trees, and vines	....	210,705*
Platina, and vases and retorts of	391,766	378,010
Plumbago	361,949	286,398
Sausage-skins	151,627	236,351
Seeds	331,222	779,424
Shells	278,295	220,816
Silk, unmanufactured	15,261,414	13,248,584
Spices, unground (ginger-root only, 1883)	123,862	4,351,390
Tanning materials	343,997	364,458
Tea	16,698,959	13,504,798
Tin	6,106,250	5,429,184
Wood, unmanufactured	4,565,064	4,358,848
Hawaiian products	8,029,835	7,704,689
All other articles	3,711,154	3,882,552
Total free of duty	$206,913,289	$211,280,265
DUTIABLE:		
Animals	$4,080,822	$3,183,482
Art-works	3,088,678	687,578
Books, maps, engravings, and other printed matter	$3,100,575	$2,754,681
Brass, and manufactures of	570,666	470,484
Breadstuffs	3,270,224	6,229,664
Bristles	1,198,797	1,185,887
Brushes of all kinds	484,705	622,665
Buttons and button material	4,061,298	3,581,231
Carriages	188,187	198,889
Cement	802,294	825,094
Chemicals, drugs, dyes, and medicines	15,991,895	18,089,655
Chicory-root	241,896	49,400
Clays or earths	204,741	238,211
Clocks and watches, and parts of	2,960,908	2,466,858
Coal, bituminous, and coke	2,197,265	2,569,958
Cocoa, manufactured	86,677	121,918
Copper, and manufactures of	191,285	291,602
Cotton, manufactures of	37,288,119	28,688,479
Earthen, stone, and china ware	3,926,414	4,618,607
Fancy articles	7,908,102	8.052,918
Fish	1,474,958	1,679,510
Flax, hemp, jute, and manufactures of	35,395,321	33,814,270
Fruits, including nuts	16,440,670	16,500,858
Furs, and manufactures of	5,142,022	5,694,787
Ginger-ale	174,972	169,180
Glass and glassware	7,592,908	7,558,184
Gold and silver, manufactures of	288,798	364,270
Grease	206,829	258,508
Gunpowder and all explosive substances	482,066	445,490
Hair, and manufactures of	608,485	458,087
Hats, bonnets, hoods, and materials for	3,168,185	4,054,760
Hay	954,818	999,148
Hops	1,490,026	808,260
India-rubber and gutta-percha, manufactures of	302,706	310,989
Iron and steel, and manufactures of	57,529,465	42,917,747
Jewelry and precious stones	8,196,730	9,377,545
Lead, and manufactures of	170,197	92,860
Leather, and manufactures of	12,658,729	11,862,890
Malt liquors	1,146,796	1,119,199
Spirits, distilled	2,296,734	1,987,069
Wines	10,258,692	4,805,089
Marble and stone, and manufactures of	975,887	950,216
Matting and mats, vegetable	702,274	769,448
Metals, and manufactures of, not elsewhere specified	1,720,889	2,248,814
Mineral substances, not elsewhere specified	111,851	75,815
Musical instruments	1,485,598	1,798,108
Oils	871,998	1,305,242
Paints and colors	1,296,509	1,301,790
Paper, and manufactures of	1,845,421	1,761,855
Provisions, meat, and dairy products	1,858,834	1,850,806
Rice	1,898,407	2,070,410
Salt	1,476,946	1,527,455
Seeds, not elsewhere specified	1,542,996	3,736,724
Silk, manufactures of	38,307,112	33,080,574
Soap	304,118	460,569
Sugar, molasses, sugar-candy, and confectionery	91,406,717	94,892,569
Tin, manufactures of	105,232	58,725
Tobacco, and manufactures of	10,515,806	8,697,750
Umbrellas, parasols, shades	80,694	111,129
Varnishes	436,211	59,263
Vegetables	3,518,136	2,445,867
Wax, and manufactures of	56,641	19,278
Wood, and manufactures of	9,604,638	9,337,832
Wools, raw	8,491,988	13,593,299
Woolen manufactures	42,552,455	41,484,871
Zinc, spelter, and manufactures of	302,982	251,476
All other dutiable articles	3,788,189	3,855,154
Total dutiable	$493,916,388	$456,295,123
Total free and dutiable	$700,829,678	$667,575,388

* Transferred to the free list by the act of March 3, 1883.

The quantities of some of the principal articles of imported merchandise entered for consumption in 1884, compared with the two preceding years, were as shown in the table on the next page:

ARTICLES.		1884.	1883.	1882.
Sugar, dutiable	pounds.	2,437,570,918	1,927,685,706	1,918,396,455
Sugar, from Hawaiian Islands	pounds.	125,148,680	114,182,670	106,181,858
Coffee	pounds.	532,514,650	515,927,287	459,407,517
Tea	pounds.	65,774,284	70,771,225	79,080,854
Tobacco, leaf	pounds.	11,075,551	13,811,140	9,688,194
Cigars and cigarettes		669,477	787,898	717,508
India-rubber, crude	pounds.	24,449,775	21,516,250	22,590,411
Clothing-wool	pounds.	20,703,848	11,546,529	13,489,923
Combing-wool	pounds.	4,474,395	1,378,113	2,318,671
Carpet-wool	pounds.	62,525,692	40,130,322	47,208,175
Woolen cloths	pounds.	10,629,961	8,220,025	8,058,891
Raw silk	pounds.	3,222,555	3,255,824	2,877,776
Pig-iron	tons.	291,954	432,352	580,061
Taggers' iron	pounds.	527,881,321	5,277,355	......
Cattle, for breeding	number.	40,828	21,650	......
Horses, for breeding	number.	16,718	5,594	......
Tin	pounds.	26,081,992	23,784,833	19,754,421
Soda-ash	pounds.	287,401,005	323,726,726	267,250,809
Lumber, sawed	M. feet.	449,644	486,410	496,008
Champagne	dozen quarts.	161,578	369,697	236,440
Brandy	gallons.	500,101	588,701	586,648
Wine in casks	gallons.	2,122,936	6,901,551	4,452,866
Barley	bushels.	8,661,715	9,944,066	12,221,778
Raisins	pounds.	56,676,657	51,487,389	43,779,867
Prunes	pounds.	61,028,461	51,110,745	59,170,805

The value of dutiable merchandise remaining in warehouse June 30, 1884, was $41,367,464; of merchandise free of duty, $298,228; total, $41,665,692, against $48,520,220 on June 30, 1883.

The effect of the change in the tariff on the wool-manufacturing and sheep-growing interests has been made the subject of special inquiries by the Treasury Department. Of clothing-wools there were imported in 1884, 20,703,848 pounds, valued at $4,700,605, against 11,546,530 pounds, of the value of $2,567,443, in 1883. The duties collected were $2,111,279 in 1884, against $1,444,948 in 1883. The average import value per pound was 22·23 cents in 1883 and 22·74 cents in 1884. Of combing-wools, 4,474,395 pounds were imported, against 1,378,113 pounds in 1883; in value, $1,058,758, against $343,987. The average import value per pound was 23·66 cents, against 25·06 cents. The duties collected were $451,521, against $176,181 during the year preceding. The quantity of carpet-wool imported increased from 40,130,322 pounds, of the value of $5,580,557, to 62,525,692 pounds, valued at $7,833,935. The average import value per pound was 13·88 cents in 1883 and 12·53 cents in 1884. The duties collected were $1,960,025 in 1884, against $1,553,498 in 1883.

Exports.—A summary of the values of exports of domestic merchandise during the year ending June 30, 1884, is given in the following table:

ARTICLES.	Values.
Agricultural implements	$3,442,767
Animals: Cattle	17,855,495
Hogs	627,480
Horses	424,817
Mules	490,809
Sheep	850,146
All other, and fowls	45,282
Bark, for tanning	292,851
Books, maps, and other printed matter	1,414,951
Brass, and manufactures of	801,014
Breadstuffs: Barley	403,622
Bread and biscuit	847,671
Indian corn	27,648,044
Indian-corn meal	818,789
Oats	700,694
Breadstuffs: Oatmeal	$771,471
Rye	4,323,105
Rye-flour	13,876
Wheat	75,026,678
Wheat-flour	51,139,696
All other breadstuffs	646,119
Carriages and horse-cars	1,582,459
Cars for railroads	1,444,089
Casings for sausages	492,184
Chemicals, drugs, and medicines: Ginseng	614,995
Proprietary medicines	1,340,583
Dyes and dyestuffs	675,492
All other	2,063,316
Clocks and watches	1,859,690
Coal: Anthracite	8,058,550
Bituminous	1,977,959
Copper: Ore	2,980,895
Ingots, bars, and other manufactures	2,664,964
Cotton: Sea-island	1,160,678
All other	195,854,561
Cotton manufactures: Colored	2,572,966
Uncolored	7,508,361
Wearing-apparel	349,270
All other	1,452,714
Fancy articles	1,148,180
Fertilizers	1,096,021
Fish: Canned salmon	2,333,096
Codfish, dried, smoked, etc	784,945
Oysters	572,487
Other fish	1,112,473
Flax, hemp, and jute manufactures	1,397,773
Fruit: Canned	495,143
Apples, green or ripe	422,447
Apples, dried	394,359
All other	484,478
Furs and fur-skins	3,993,182
Glass and glassware	839,756
Grease	715,650
Gunpowder	294,630
Other explosives	383,303
Hair, and manufactures of	640,939
Hay	309,781
Hides and skins	1,304,329
Hops	3,265,211
India-rubber manufactures	635,046
Instruments	557,494
Iron, steel, and manufactures of: Machinery	5,256,431
Sewing-machines	3,552,814
Locomotive engines	2,819,946
Saws and tools	1,290,448
Firearms	1,266,331
Locks, hinges, etc	920,253
All other	6,815,209
Jewelry, etc	558,325
Lamps, chandeliers, etc	490,491
Leather: Sole	4,613,106
Upper	2,062,651
Patent and other	347,818
Leather manufactures: Boots and shoes	602,925
All other	679,284
Malt liquors	594,770
Marble, stone, and manufactures of	603,260

ARTICLES.	Values.
Musical instruments: Organs	$641,188
Piano-fortes and other	487,980
Naval stores	3,119,200
Oil-cake	7,115,158
Oils, animal: Lard	504,218
All other	666,207
Oils, mineral: Crude	5,802,974
Illuminating	38,195,849
Lubricating and paraffine	2,179,595
Naphthas	1,072,651
Residuum	352,679
Oils, vegetable: Cotton-seed	1,570,871
Essential and other	281,658
Ore: Gold and silver	1,052,841
Paraffine and paraffine-wax	1,268,197
Paints and colors	477,469
Paper manufactures	929,821
Plated ware	468,762
Provisions: Beef, fresh	11,987,381
Canned beef	3,178,767
Salted and pickled beef	3,202,275
Tallow	4,798,875
Other cured beef	67,758
Mutton	282,087
Oleomargarine	4,842,862
Bacon	33,797,430
Hams	5,857,415
Pork, salted or cured	4,749,658
Pork, fresh	18,057
Lard	25,305,958
Other meat products	638,828
Butter	3,750,771
Cheese	11,663,718
Milk	208,006
Quicksilver	427,219
Seeds: Clover and other	3,477,388
Soap	740,426
Spirits: Alcohol	764,988
Bourbon whisky	2,236,617
Rye whisky	856,728
Rum and other	280,876
Spirits of turpentine	3,885,500
Starch	305,515
Stationery, except paper	842,989
Sugar: Refined	5,402,498
Molasses and sirup	898,966
Other products	126,711
Tobacco: Leaf	17,405,234
Stems and trimmings	360,526
Manufactured	2,580,457
Vegetables	1,118,179
Vessels sold to foreigners	381,840
Whalebone	319,508
Wood: Boards, etc	7,079,701
Staves and headings	2,686,478
Shooks	1,718,290
Other lumber, etc	1,758,559
Sawed timber	2,247,828
Hewed timber	1,785,882
Logs and other timber	1,704,685
Wood manufactures: Furniture	2,429,881
Wooden-ware	406,264
Hogsheads and barrels	820,184
Doors, sashes, and blinds	294,942
All other	1,898,499
Wool manufactures: Wearing-apparel	532,658
All others, and raw wool	174,528
All other manufactured articles	3,524,010
All other unmanufactured articles	1,149,969
Total value of domestic exports	$724,964,852

The number of live cattle exported in 1883–'84 was 190,518; of hogs, 46,382; of horses, 2,721; of mules, 3,742; of sheep, 273,874. The wheat exports consisted of 70,349,012 bushels of wheat, and 9,152,260 barrels of flour. The quantity of Indian corn exported was 45,247,512 bushels. The ginseng export was 295,242 pounds. The copper exports comprised 19,307 tons of ore and 17,044,760 pounds of metal. The exports of raw cotton were 11,094 bales, weighing 3,598,866 pounds, of Sea-island, and 3,873,139 bales, weighing 1,858,973,664 pounds, of other qualities. The quantity of colored piece-goods was 85,441,296, of uncolored, 99,750,450 yards. The quantity of fertilizers shipped abroad was 161,352 tons. The fish exports included 14,929,123 pounds of cured codfish, 7,174,332 pounds of other cured fish, and 1,641,061 pounds of fresh fish. The export of cordage amounted to 6,975,776 pounds. The shipments of dried apples were 5,558,746 pounds; of fresh apples, 105,400 barrels; of hops, 13,516,643 pounds. The shipments of sole-leather amounted to 22,421,293 pounds; of boots and shoes to 502,122 pairs. The number of organs exported was 8,868; of pianos, 1,021. The export of rosin was 1,545,211 barrels; of lard-oil, 712,696 gallons; of sperm-oil, 843,069 gallons; of cotton-seed oil, 3,605,946 gallons. The petroleum exports comprised 415,615,698 gallons of illuminating, 67,186,329 of crude oil, 10,515,535 of lubricating and paraffine oils, 15,045,411 of naphtha, and 126,122 barrels of tar and residuum, with 17,089,817 pounds of paraffine and paraffine-wax. The beef products comprised 120,784,064 pounds of fresh meat, 42,379,911 of salted, 641,163 of other cured meat, and 63,091,103 pounds of tallow, besides canned meat and the oleomargarine products, of which latter there were shipped 1,537,682 pounds of imitation butter and 37,785,159 pounds of Thé-oil. The pork products comprised 341,579,410 pounds of bacon, 47,919,958 of hams, 265,094,719 of lard, 60,363,319 of salted and cured pork, and 185,417 of fresh meat. The shipments of cheese were 112,869,575 pounds; of butter, 20,627,374 pounds. The export of quicksilver was 1,242,080 pounds. The quantity of clover-seed exported was 27,404,737 pounds; of timothy, 6,836,394 pounds. The number of gallons of alcohol exported was 3,897,082; of Bourbon whisky, 2,595,991; of rum, 667,847. Of spirits of turpentine there were 11,800,729 gallons exported; of starch, 6,787,909 pounds. The quantity of refined sugar was 75,920,734 pounds; of molasses and sirup, 5,906,005 gallons. The export of leaf-tobacco amounted to 192,130,820 pounds. Among the wood exports were 414,920,000 feet of boards and planks, 201,257 of sawed timber, and 10,615,065 cubic feet of hewed timber.

The cotton export fell off from 2,288,075,062 pounds, valued at $247,328,721, in 1883, to 1,862,572,580 pounds, valued at $197,015,204, in 1884; and the wheat export from 106,385,828 bushels, valued at $119,879,341, to 70,349,012 bushels, valued at $75,026,678. The Indian-corn export increased from 40,586,825 bushels to 45,247,510, but the value declined from $27,756,082 to $27,648,189.

Movement of Specie.—The total values of the imports of coin and bullion during the year ending June 30, 1884, were as follow:

IMPORTS.			Values.
Gold:	Bars		$3,186,985
	Other bullion		1,810,586
	Coin:	American	3,824,962
		Foreign	14,008,784
		Total gold	$22,831,317

IMPORTS.			Values.
Silver:	Bars		$993,357
	Other bullion		1,917,094
	Coin:	American	686,182
		Foreign	10,998,312
	Total silver		$14,594,945
	Total imports of coin and bullion		$37,426,262

The following were the kinds and amounts of domestic coin and bullion exported during the year:

DOMESTIC EXPORTS.			Values.
Gold:	Bars, United States Mint or Assay-Office		$22,961,856
	Other bullion		90,327
	Coin		12,242,021
	Total		$35,294,204
Silver:	Bars, United States Mint or Assay-Office		$7,522,671
	Other bullion		6,718,379
	Coin:	Trade-dollars	225,500
		Other	464,881
	Total		$14,931,431
	Total exports of domestic coin and bullion		$50,225,635

The exports of foreign coin and bullion were as follow:

FOREIGN EXPORTS.		Values.
Gold:	Bullion	$2,400
	Coin	5,785,358
	Total gold	$5,787,758
Silver:	Bullion	$494,240
	Coin	10,625,755
	Total silver	$11,119,995
	Total exports of foreign coin and bullion	$16,907,748

In 1882–'83 the imports of gold amounted to $17,784,149; of silver, to $10,755,242; total, $28,489,391. Domestic exports of gold, $8,920,909; of silver, $12,702,272; total, $21,623,181. Foreign exports of gold, $2,679,979; of silver, $7,517,173; total, $10,197,152.

Percentage of Foreign Countries in the Commerce of 1884.—The participation in the American export and import commerce during 1884, of each foreign country of which the share in the aggregate commerce was more than one fourth of one per cent., was as follows:

COUNTRIES.	Per cent. of total imports.	Per cent. of total domestic exports.	Per cent. of total foreign exports.	Per cent. of total imports and exports.
Great Britain and Ireland	24·34	52·79	22·65	38·97
Germany	9·74	8·18	8·69	8·92
France	10·61	6·82	10·35	8·64
Dominion of Canada	5·74	5·57	24·97	5·87
Cuba	8·56	1·46	2·24	4·84
Brazil	7·53	1·19	·32	4·18
Belgium	1·64	3·08	4·45	2·33
Italy	2·50	1·05	3·26	1·76
British East Indies	2·98	·52	·02	1·65
Mexico	1·85	1·53	10·33	1·54
Netherlands	·78	2·16	1·51	1·52
China	2·84	·68	....	1·44
British West Indies	1·47	1·18	1·90	1·32
Spain	·98	1·65	·08	1·29
Switzerland	2·47	....	....	1·17
Japan	1·69	·35	·07	·98
British possessions in Australasia	·65	1·27	1·04	·98
Spanish possessions, all other	1·85	·08	....	·89
Hawaiian Islands	1·19	·47	·50	·81
United States of Colombia	·57	·35	1·33	·73
Austria	1·16	·35	·04	·73
Russia on the Baltic and White Seas	·23	1·15	....	·70
Central American states	·92	·44	·73	·66
Argentine Republic	·62	·66	1·60	·65
Porto Rico	1·03	·29	·23	·65
Venezuela	1·00	·33	·25	·65
British Guiana	·61	·25	·33	·43
Portugal	·19	·64	·08	·42
Dutch East Indies	·52	·29	....	·40
Sweden and Norway	·46	·34	·02	·39
Hayti	·36	·38	·23	·37
French West Indies	·47	·25	·19	·35
Hong-Kong	·23	·43	·08	·33
Denmark	·06	·58	....	·31
Russia on the Black Sea	·17	·39	....	·28
Chili	·08	·45	·22	·27
British possessions in Africa	·33	·22	·08	·27
Uruguay	·32	·17	·83	·25
All other countries	2·39	1·71	1·43	2·01
Total	100·00	100·00	100·00	100·00

Percentage of Customs Districts in the Commerce of 1884.—The customs districts in which the transactions amounted to more than one fourth of one per cent. of the total foreign commerce of 1883–'84, participated in the following proportions in the export and import trade of the year:

CUSTOMS DISTRICTS.	Per cent. of total imports.	Per cent. of total domestic exports.	Per cent. of total foreign exports.	Per cent. of total imports and exports.
New York, N. Y	69·66	44·15	63·46	56·46
Boston and Charlestown, Mass	9·87	8·63	6·18	9 19
New Orleans, La	1·62	11·26	1·53	6·56
San Francisco, Cal	5·37	4·99	5·51	5·18
Philadelphia, Pa	5·05	5·02	·16	4·98
Baltimore, Md	1·71	5·95	·11	3·57
Galveston, Tex	·17	2·82	·14	1·53
Savannah, Ga	·09	2·75	....	1·46
Charleston, S. C	·07	2·24	....	1·19
Huron, Mich	·37	1·66	8·40	1·12
Norfolk and Portsmouth, Va	·04	1·71	....	·89
Portland and Falmouth, Me	·36	·97	1·78	·68
Vermont, Vt	·88	·25	....	·55
Oswego, N. Y	·36	·21	·08	·52
Oswegatchie, N. Y	·84	·48	·07	·41
Detroit, Mich	·28	·46	·30	·37
Willamette, Oreg	·10	·60	....	·36
Buffalo Creek, N. Y	·66	·05	·01	·34
Champlain, N. Y	·48	·19	·05	·32
Mobile, Ala	·04	·58	....	·29
Wilmington, N. C	·04	·54	·05	·29
Chicago, Ill	·14	·40	·12	·27
Yorktown, Va	·01	·51	....	·27
Minnesota, Minn	·16	·37	·09	·27
All other districts	1·60	3·26	12·01	2·61
Total	100·00	100·00	100·00	100·00

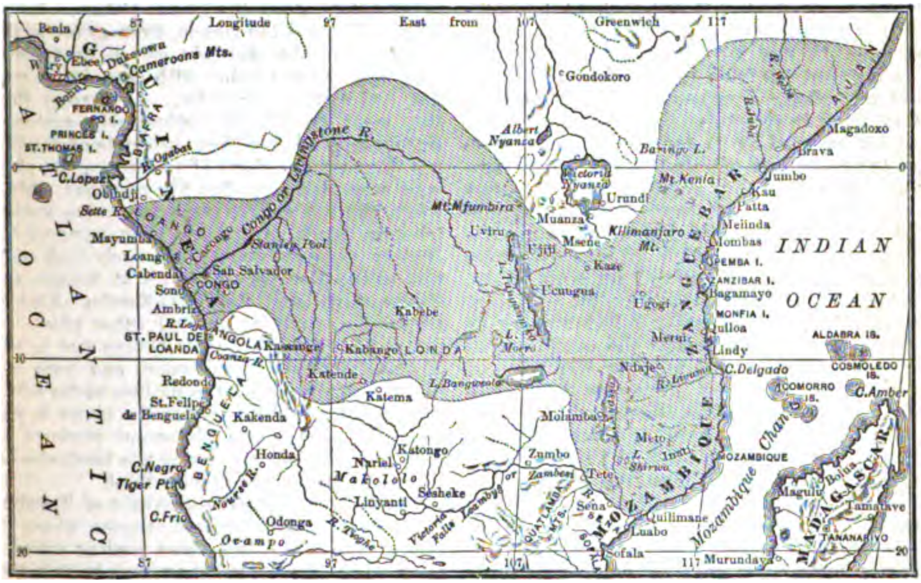
Navigation.—The total number of vessels in the foreign trade of the United States entered during the twelve months ending with June, 1884, was 31,822, aggregating 15,068,828 tons, against 32,967, of 16,381,727 tons, in 1882–'83. The number of American vessels was 9,617, of 3,202,293 tons, against 9,499, of 3,255,543 tons, in 1883; the number of foreign vessels, 22,205, tonnage, 11,866,535, against 23,468, of 13,126,184 tons, in 1883.

The total number of clearances was 31,981, tonnage 15,208,108, against 33,128 vessels and

16,540,976 tons in 1883. The number of American vessels was 9,575, tonnage 3,286,641, against 9,499, of 3,307,203 tons in 1883; the number of foreign vessels, 22,406, of 11,966,467 tons, against 23,629, of 13,233,773 tons, in 1883.

The percentage of the total commerce carried in American vessels in 1884 was 16·42 per cent., against 16·28 in 1883, 15·5 in 1882, 16 in 1881, 17·4 in 1880, 22·6 in 1879, 25·9 in 1878, 26·5 in 1877, 33·1 in 1876, 25·8 in 1875, 35·6 in 1870, 27·7 in 1865, 66·5 in 1860, and 75·2 in 1856.

CONGO, INTERNATIONAL ASSOCIATION OF THE. The International African Association was established under the patronage of the King of the Belgians, with the aim of bringing about union and co-operation among the persons and societies in various countries interested in African discovery, and thus organizing exploration on a systematic plan for the purposes of extending science, promoting the commercial development of Africa, and counteracting and checking the slave-trade. The German African Society and the French section of the International Association were organized as branches, and occupied themselves with the exploration of west equatorial Africa, the former sending out Schütt and Buchner, and later Pogge and Wissmann, to the Angola coast, and the latter sending De Brazza and Dr. Ballay to explore the Ogowé. The Belgian society devoted itself at first to opening paths for explorers and traders from the Zanzibar coast into the interior. Afterward it placed its resources at the disposal of Henry M. Stanley, for the purpose of establishing his influence over the tribes on the Congo, improving communications between the Atlantic coast and the Upper Congo, and preparing the way for traders and missionaries. To prevent the annexation of its field of labor by European powers, the Association asked for recognition as a *quasi*-political organization, the trustee of sovereign rights, which were to belong to a free state or free states of the Congo, to be organized under its auspices.



MAP OF THE CONGO COUNTRY.

Geography of Central Africa.—The interior of Africa is an elevated plateau, ranging in altitude from 2,000 to 4,000 feet, with mountain-masses rising to 10,000 or 12,000 feet, and even 19,000 feet, which is the height of the Kilimandjaro peak, east of Victoria Nyanza. In the most elevated region, on the eastern side of the continent, among the great lakes, the three principal rivers of Africa take their rise. The Zambesi, flowing into the Indian Ocean, drains the country south of the Congo basin, and receives through the Shire the surplus waters of Lake Nyassa. The Nile takes the outflow of the Victoria and Albert lakes. The Victoria Nyanza, the largest of the inland seas, exceeding Lake Superior in size, is above the level of the others. In the flood-season it overflows into the lakes on the south. During that period all the lakes and the head-waters of the great rivers are connected by navigable channels. The navigable water-courses of that part of Africa are innumerable. The Congo Valley is also intersected by long rivers, many of them navigable to their source, and is sprinkled with a multitude of lakes. The course of the river is about 3,000 miles long. The soil of central Africa is exceeding fertile, and the climate pleasant and healthful. The interior is thickly populated by tribes that are generally peaceful and good agriculturists, with a taste for trading. The population of the Congo basin is estimated at 40,000,000, that of the lake-region at about the same.

The Congo issues into the Atlantic Ocean in one stream, seven miles broad, and of enormous depth. The estuary leads up 110 miles to Vivi, where the series of cataracts and rapids known as Livingstone Falls begins. It is navigable to vessels drawing fifteen feet of water. From the first waterfall to the station of Isangila, 52 miles, navigation is impossible. From that point to South Manyaga, 88 miles, there is a passage practicable to light-draught steamers. The next 95 miles, up to Leopoldville, at the entrance to Stanley Pool, must be made by land-carriage. From Leopoldville to Stanley Falls, 1,060 miles, there is no interruption of navigation. River-steamers can be hauled up the rapids at this point, after which they have a free passage for 300 miles to within seven miles of Nyangwe, the chief emporium of the Arab trade in central Africa. Beyond Nyangwe the main stream is navigable for over 300 miles, and the Lualaba, or the Ramolondo, for 300 more. Of the affluents on the left bank, the Kwango, or Kwa, 100 miles above Leopoldville, is navigable for 450 miles, including Lake Leopold II, and its outlet, which joins the Kwango not far from its mouth. The Irebu, 150 miles above Kwamouth, issues from Lake Mantumba, in the midst of a productive region thickly peopled by an industrious and enterprising nation; it affords 100 miles of navigation. The Monindu, or Black River, enters the Congo 60 miles farther up, near the equator, and gives probably 400 miles of navigation. The Lulungu, which debouches 50 miles farther up, is thickly settled on both banks, and can be navigated, probably, for 600 miles. Within 40 miles of Stanley Falls is the mouth of the Lubiranzi, formed by the confluence of two large rivers, giving together 800 miles of navigation. The most important tributaries from the north are the Bumba, the Ubangi, the Itimbiri, the Aruwimi, or Biyerre (which Stanley still believes is identical with Schweinfurth's Welle), the Mbura, the Lowwa, and several powerful streams of less navigable value. The Aruwimi is impeded by rapids 95 miles from its mouth. The Congo and its tributaries have 8,000 miles of unimpeded navigation, and beyond the portages 2,000 more.

Products.—The chief commercial product of the Upper Congo at present is ivory, and Mr. Stanley believes that it will take many generations to exhaust the supply. The banks of the Middle and Upper Congo are lined with groves of the oil-palm. The orchilla-weed is found everywhere. The wild coffee plant, which is equally abundant, yields excellent berries. In some districts India-rubber can be obtained in unlimited quantities. Ground camwood and nutmegs are common products. Gum-copal can also be supplied in large quantities. In the lake-region there are rich iron and copper mines, and gold and silver deposits. Bananas, oranges, and other fruits, have been cultivated by settlers on the Lower Congo. Some of the timber of the Congo region is valuable enough to repay the costliest transportation. There are also precious spices and gums. The Upper Congo region, particularly the elevated country between the Congo and the lakes, is described as a promising field for colonization. The climate there is salubrious and temperate. The rich river-valleys and old lake-bottoms yield wonderful crops of rice and grain. There are pastoral plains, which are covered with the herds of flourishing native communities.

Trade.—The trade of the Lower Congo and of the adjoining coast districts, for a distance of 888 miles, amounts to about $14,000,000 annually. This trade is monopolized by a few Dutch and English firms, which were antagonistic to the Belgian Association because it threatened to destroy their exclusive privileges by enabling small traders to settle in the interior. There are many small traders of Portuguese nationality. Before 1876 there were no factories farther inland than Boma. Since then, trading-posts have been established at many points along the Lower Congo. Native traders descend the Congo, from as far as the equator, and the Monindu and Kwango affluents, with canoes laden with iron, ivory, rubber, and camwood-powder. At Stanley Pool they meet caravans of natives, who exchange European goods for these products of the Upper Congo. The fleets of trading-canoes often wait several months for the caravans, which, when the red calico, small hardware, knives, trinkets, beads, etc., have been bartered for African produce, march toilsomely back with this to the European factories at Loango, the Kwilu, Landana, Kabinda-Zombo, Kinzao, Kinsembo, Ambrizette, and other places on the coast. On the Lower Congo and in the coast-region rum, gunpowder, and guns are in demand, for which the natives barter palm-oil. An entry duty, generally about 6 per cent. ad valorem, on European products, is paid to the chiefs possessing the territories on the coast and around Stanley Pool.

From the east coast the Arabs of Zanzibar have penetrated as far as Nyangwe, where, as also at Ujiji, there is a large trading community. Some have settled on rich lands in the Congo Valley, on which they pursue agriculture with the labor of large gangs of slaves. The Arab traders still combine the slave-trade with the ivory-trade.

The International Association.—The African Association was founded by the King of the Belgians in 1876, and supported mainly from his private purse. Its object was the purely philanthropic one of opening trade routes into the interior for legitimate commerce, in order to do away with the slave-trade, and civilize and develop central Africa. On the east coast engineers and explorers were employed in establishing a caravan route and a row of stations between Zanzibar and Lake Tanganyika. The stations founded at Karema, on the east shore of Tanganyika, and at M'pala's, on the opposite shore, became permanent and important trading-posts, the former bidding fair to outstrip Ujiji. The route between this place and the coast and the native paths to Ujiji followed by Burton and Speke, were improved, and the dangers and vexations removed. The time of transit was reduced in two years from six months to forty-five days. A secure and regular system of porterage was organized.

When Stanley returned from his explorations of the Congo between 1874 and 1877, King Leopold proposed to appoint him agent of the Association, to extend its work into West Africa. Means were furnished him to revisit the natives in the neighborhood of Stanley Pool, in accordance with a promise he had given. His reception was so encouraging that the Association supplied him liberally with money for the purpose of extending the line of stations across the continent along the course of the Congo. To establish a line of communications with the coast was the first need. Mr. Stanley accordingly undertook the costly and difficult engineering task of building a mountain road along the thirty-two cataracts called the Livingstone Falls. The Portuguese were stimulated to activity in Africa by Stanley's discoveries, and impelled by the proceedings of the Association to reassert their dormant territorial rights over the mouth of the Congo. The French aimed at territorial aggrandizement in the direction of the Congo, with the object of controlling the commercial outlet of the Congo region if possible. Mr. Stanley conceived the idea of acquiring for his association the sovereign rights on the river-banks, in order to prevent any power from placing barriers between its field of operations and the ocean. Agents of the Association secured from the chiefs on both sides of the river between Nokki and Stanley Pool the right of governorship, the right to allow or refuse passage through the country, the rights to trade, to colonize, to mine, etc. When Stanley had completed his road, upon reaching Stanley Pool again in July, 1881, he found that he had been outflanked by the French explorer De Brazza, who had crossed from the Ogowé, by a route that he declared to be superior to Stanley's expensive artificial road, and obtained in the name of France a treaty from Makoko assigning to the French Republic the sovereignty over the right bank of the Congo. Mr. Stanley was obliged to change his plans and seek sites on the other bank for his stations. The principal one was placed at the lower entrance of Stanley Pool, and called Leopoldville. In December, 1881, he launched his steel stern-paddle steamer, composed of separable air-tight parts. Three others were added after his return from Europe in 1883. When he came back from his sick-leave he ascended the Congo and founded the stations of Bolobo and Itengo, 110 and 290 miles above Leopoldville.

The same year, having come to the conclusion that the best route from the coast was by Niadi-Kwilu river, Stanley had the river explored and seven stations founded on its banks. There are others along the coast between the Kwilu and Sette rivers, at Mayumba, N'yanga, and Sette Camma.

On Aug. 24, 1883, Mr. Stanley set out from Leopoldville on a new expedition, for the purpose of founding new stations, and more thoroughly exploring the affluents of the Congo as far as Stanley Falls. He had four small steamers of six to eight tons burden. The station Bolobo, which had been burned by the Byanzis, was rebuilt after peace was made. A new station was founded at Lukolela, 2½° south of the equator, and an Englishman, named Glave, was left in command. Another, called Equator Station, was established where the river leaves the equator; and one, called Ban-

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galla, 120 miles farther up, at the mouth of the Lulemgu, at the solicitation of the Bangalla tribe, which attacked Stanley in 1877. A station was established at Stanley Falls and a garrison placed there in charge of one of the steamboat engineers, named Binnie. At the mouth of the Aruwimi, or Werre, as the natives now called it, and farther up the Biyerre, where on his former voyage the explorer sustained a desperate battle, the natives now gathered in hosts, but did not venture to attack the steamboats, and soon made pacific demonstrations. Steaming up the rapid and tortuous stream, they were stopped by rapids 95 miles above the mouth. The architecture of the numerous villages and the customs of the people differ greatly from anything observed on the Congo. The expedition returned to Leopoldville Jan. 20, 1884.

In June, 1884, Mr. Stanley returned to Europe, turning over the command to Col. Sir Francis de Winton. There were at that time 155 white men at the various stations of the Association, and about 1,800 natives in its service.

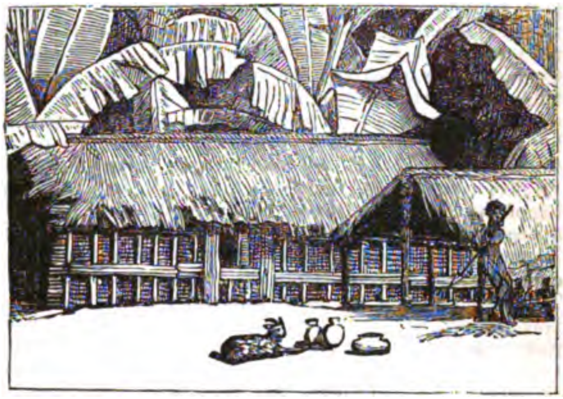
In October, 1884, Lieut. Becker left Zanzibar on a two years' mission, the purpose of which is to establish a connecting line of stations from Lake Tanganyika, through Manyemaland, to Nyangwe, 340 miles from the lake, and thence down the Congo, 337 miles, to Stanley Falls.

Portuguese Claims to the Congo.—The Portuguese lay claim to the mouth of the Congo and the littoral between 8° and 5° 12′ south latitude by virtue of the discovery of the estuary by Diego Cam about 1484. Many years ago the Portuguese Government was on the point of establishing its jurisdiction on this coast, when it was restrained by the Government at London. In 1853 Lord Clarendon declared the Portuguese rights to have lapsed, a position which was reaffirmed by Lord John Russell in 1860 and Lord Derby in 1876. The trade that grew up at the mouth of the Congo was carried on under treaties made by the British authorities with the native chiefs. The principal objection to the Portuguese claims was, ostensibly, that the Portuguese Government allowed slavery and slave-trading. Slavery was abolished in Angola and the other possessions of Portugal in 1878. When the International Association appeared on the Congo, the Lisbon Government pressed again for a recognition of its historical rights. The British Government, thinking thereby to settle the question of the Congo in a matter satisfactory to itself, signed a treaty restricting the customs tariff to 6 per cent. ad valorem, and providing for the neutralization of Congo river, and the appointment of an Anglo-Portuguese river commission to administer it, according to the principles of the Treaty of Vienna of 1815, and for measures to suppress the slave-trade. The treaty, signed Feb. 26, 1884, was assailed in England, on the ground that it would place it in the power of Portugal to control the entrance to the Congo region, as the Portuguese would find ways of evading the restrictions. Throughout the Continent of Europe, the proposed river commission was regarded as an indirect means of securing exclusive privileges on the Congo for English commerce. As the treaty would have no value unless other powers recognized Portuguese sovereignty, Earl Granville entered into correspondence with the German Cabinet, and found that it was seriously opposed to the treaty. A proposition to make the river commission international failed to remove the objections. In the summer, ex-Minister Serpa-Pimentel visited Berlin and other capitals to lay the Portuguese case before the cabinets. In consequence of the objections of Germany, seconded by France and the Netherlands, the English Government withdrew the treaty.

Recognition of the Congo Association by the United States.—While the Portuguese treaty was awaiting ratification, a feeling of sympathy was felt in America for the International Association, springing from the interests of the United States in the freedom of commerce promised by the Association, and from the fact that its successes were achieved by the energy of an American citizen. In the President's message of Dec. 4, 1883, the prospect of co-operation with other commercial powers to secure the neutralization of the Congo was mentioned. In February, 1884, a resolution was introduced into the Senate, to recognize the International Association. Although not approved by the Committee on Foreign Affairs, it was brought forward again, and passed April 10. It authorized the President to recognize the flag of the International Association of the Congo as that of a friendly government. In the declarations interchanged between the Association and the Government at Washington, the Association announced that the territory ceded to it would be handed over to free states to be organized under its supervision; that it had adopted for its emblem, and that of the free states that would succeed it, a blue flag with a golden star in its center; that it undertook for itself and for the free states to levy no customs duties on imports, to guarantee complete commercial and religious liberty to all foreigners settling in their territories, and to grant to the citizens of no nation advantages that were not extended at the same time to the citizens of all other nations. The United States Government expressed its approval of the benevolent purposes of the Association, and formally recognized its flag as the flag of a friendly government.

French Action on the Congo.—Savorgnan de Brazza was sent out to explore central Africa from the Gaboon coast by the French section of the International Association in 1879. Ascending Ogowé river to its source, he found a few miles distant the head-waters of the Alima, which he followed down to Stanley Pool. Having discovered a route to the Upper Congo, with navigable water nearly the whole way, the explorer made hasty arrangements to bring it into prominence as a rival road to the one being constructed by Stanley around the Congo cataracts. He laid out a series of stations along the two rivers, and concluded a treaty with the makoko, or head chief, of the Batekes, by which he acquired a small strip of land called Meuma, on the Congo, above Stanley Pool. By virtue of this and a second treaty, he asserted a French protectorate over the right bank of the Congo, from the Gordon Bennett to the Impila river, a length of three hundred miles. The two treaties made with this potentate were ratified by the French Chambers. When Stanley returned, six months after the departure of De Brazza, he found the site he had selected for a port on Stanley Pool already taken for the French station of Brazzaville. De Brazza's makoko was dead, and his successor, Mpumo Ntabo, wished to repudiate his engagements; but Mr. Stanley was not disposed to begin a conflict. Later, De Brazza raised a claim, which the agents of the Association would not allow. Although the treaty with the makoko defined the ceded district as on the right bank, the French claimed sovereign rights over the left bank of Stanley Pool and the Congo up to the mouth of the Kwango, affirming it to be Bateke territory, because it is largely populated by people of that tribe. The Batekes on the south bank of the Congo are traders and refugee slaves. The real owners of the soil are said to be the hill tribes to the south and west, who exact a tribute of the ivory that is sold by the Bayansi and Babuma traders of the Upper Congo to the Bakongo, who transport it to the coast. The ivory-traders occupy the south bank of the river while waiting for the caravans, and give their landlords a share of the price for the privilege. On this bank are the stations of the International Association. The French agents tried to gain the support of the negro settlers to their territorial claims. Several times they entered the territory occupied by the Association and claimed jurisdiction in a menacing manner. The Association finally, in order to escape the danger of being evicted from its establishments in the vicinity of Stanley Pool, entered into a convention with the French Government in April, 1884, whereby it promised France the right of preference in case it should be obliged to sell its possessions on the Congo and in the valley of the Niadi-Kwilu. It declared that it would not cede its territories to any power, but promised the pre-emption to France if unforeseen circumstances obliged it to part with them, in return for which the French Government promised to respect the stations and free territories of the Association, and not obstruct the exercise of its rights. France and the Association were to fix in conventions the limits and conditions of their respective action.

Franco-German Concert. — Germany, on the 26th of April, 1884, invited France to an exchange of views with reference to the Anglo-Portuguese treaty, in order that they might act in concert. The British Government abandoned the treaty in consequence of their objections. The result of correspondence and a conference at Varzin between M. de Courcel and Prince Bismarck was an agreement reached in September to call a congress of maritime powers in Berlin, for the purpose of establishing freedom of navigation on the Congo and the Niger, in accordance with the doctrines of the Vienna Congress, and free trade in the basin of the Congo through the instrumentality of the International Association and future Congo state. Germany stipulated for the same privileges for her subjects in the event of the acquisition of the territories of the Association by France, in accordance with the convention concluded between M. Ferry and Baron Strauch, President of the International Association of the Congo. Another question to be settled by the congress was the definition of the formalities that are necessary, in order that fresh annexations on the coast of Africa may be effective. Invitations to the conference were issued October 6. All the powers invited signified their acceptance; England, however, not without a preliminary discussion and a reservation with reference to the navigation of the Niger.



A HOUSE IN BOLOBO.

German Recognition of the Association of the Congo.—Articles were signed at Brussels by Baron Strauch and Count Brandenburg, the German Minister to Belgium, Oct. 8, by which Germany recognized the flag of the Association as that of a friendly state, and promised to recognize the frontier of the future Congo Free State as indicated on a map appended to the treaty. The Association engaged not to levy any dues on merchandise, to afford to German subjects complete protection, and rights of navigation, commerce, industry, the right to settle, establish houses of commerce, and buy and sell and rent land, and the right to carry on the coasting and river trade under the German flag. It was stipulated that all the rights extended by the Association to subjects of the German Empire, and guaranteed by the convention, should have binding force on the acquiring party, in case the Association should cede away its territory, or any portion of it.

The Berlin Conference.—The West African Conference met at Berlin, Nov. 15. Germany, Austria-Hungary, Belgium, Denmark, Spain, the United States, France, Great Britain, Italy, Holland, Portugal, Russia, Sweden and Norway, and Turkey took part, being represented by their ministers in Berlin, and some of them by adjunct members. Portugal presented a memorandum, in which her claim to the mouth of the Congo was advanced. Sir Edward Malet, on behalf of England, reserved the Niger from the application of international control, while accepting the principle of freedom of navigation and the doctrines of the Congress of Vienna, under English surveillance. Shortly before the meeting of the conference, Great Britain proclaimed a protectorate over the valley of the Lower Niger, up to the junction with the Benue, and over the coast from Benin to Ambas Bay. The memorandum set forth that the English Government had furnished means for the exploration of the Niger, that the commerce is exclusively in the hands of the English, that order and progress had been achieved by the influence of English consuls, supported by the presence of British frigates, and that, in the interests of commerce and civilization, Great Britain had, by treaty with the native rulers, taken the Lower Niger under her protection. Great Britain engaged to treat the ships of other nations on the same footing as British ships, and to levy no tax or duty on imports. After long discussion, the English position was admitted by the Conference. A separate *acte de navigation* was drawn up for that river, in which a British river commission takes the place of an international one. A proposal of the English representatives to interdict the importation of spirituous liquors into the Benue region, in view of the fact that a large portion of the inhabitants are Mohammedans, was not accepted. The American representative defined the limits of the commercial basin of the Congo, according to the views of Henry M. Stanley, who was present as an expert delegate for the United States. Mr. Stanley and the International Association desired to include in the field of their operations the northern lakes connected with the Nile system and the rich territory surrounding them, occupied by powerful native kingdoms. The Conference reduced considerably the limits proposed for the neutralized territory in this direction, and also the coast-line on the Atlantic. The American Minister proposed that the whole territory to be declared free to navigation and commerce by the Conference should be neutral in time of war, and that no articles constituting contraband of war should be supplied to belligerents from within its borders. The region indicated included the debatable strip of coast claimed by Portugal and the coast-line occupied by the stations of the International Association. Between the two, south of the mouth of the Kwilu, the French had recently taken possession of Loango and Black Point, and were suspected of a design to acquire ultimately the coast district of the Association, and thus to extend their possessions to the mouth of the Congo. Baron de Courcel strenuously opposed the neutrality proposal of America, and submitted a counter-proposal to neutralize simply Congo river and its affluents. Mr. Sanford, the adjunct delegate for the United States, presented a scheme for a railroad from Vivi to Stanley Pool, with a monopoly of the route, with a proposal that it be extended to the coast with like guarantees. Portugal and France objected to the proposal, which was defeated.

MLONGO MLAKO, KING OF DANDANGA.

The Congress adopted a declaration, Dec. 1, establishing freedom of navigation and commerce in the commercial basin of the Congo. The boundaries of the free-trade territory were defined in this declaration. The Atlantic coast-line extends from Sette river on the north to Loge river on the south. The northern boundary follows Sette river to its source, and then runs eastward along the water-shed of the Ogowé until it reaches the geographical basin of the Congo. It follows the water-shed between the Congo on the south and the Shari and the Nile on the north, and then, avoiding the basin of the Nile, runs northward so as to include the coast-region on the Indian Ocean as far as the fifth parallel of north latitude. The littoral of the Indian Ocean extends from 5° N. to the mouth of the Zambesi. The southern boundary ascends the Zambesi to beyond the confluence of the Shire, then follows the water-shed between the Shire and Lake Nyassa and the valley of the Zambesi, until it reaches the water-shed between the Congo and the Zambesi; thence it coincides with the limit of the geographical basin of the Congo until it meets a line running eastward from the source of the Loge, which line it follows to the head-waters of the Loge, and then the course of that river to the Atlantic Ocean. The eastern littoral consists of territory subject to Portugal and to the Sultan of Zanzibar. The powers did not undertake to enforce the principle of free trade on that coast, but to use their good offices to secure the most favorable conditions for the commerce of all nations. All flags, without distinction, have free access to the coast-line and the rivers running into the sea within the boundaries thus delimitated, and to the waters of the Congo and its affluents. Wares of whatever origin imported into the free territory shall be subject to no taxes except such as are necessary to meet useful expenditures in the interests of trade. No differential dues on vessels or on commodities shall be levied. No power exercising sovereignty within the free territory shall be allowed to grant monopolies or favor in matters of trade. All powers having rights of sovereignty in the free territory bind themselves to watch over the preservation of the native tribes, to care for their improvement and civilization, and to aid in the suppression of the slave-traffic and slavery; also to protect and favor religious, charitable, and scientific institutions, to extend especial protection to missionaries and explorers, and to grant perfect freedom of conscience and of worship to natives as well as to foreigners. At the instance of France, supported by Portugal, a proviso was inserted reserving the right to reconsider and revoke the freedom of import after the lapse of twenty years.

During the sessions of the Congress, Great Britain also recognized the International Association under the same conditions that were made by Germany, with new stipulations providing for consular jurisdiction until an organized government should be established by the Congo state. Italy formally recognized the Association in a convention modeled after the English agreement.

On Dec. 18 the Conference adopted a navigation act, placing the Congo under the control of an International Navigation Commission. It declared the Congo and its affluents to be free to the flags and subjects of all nations for commerce, transportation of goods and passengers, the great and small coasting-trade and boat-trade on the rivers to be on a footing of perfect equality. No exclusive navigation privileges can be granted to any company or individual. There can be no sliding-scale, station or depot tax, charges for breaking bulk, compulsory entry into port, nor any exactions based merely upon the fact of navigation, nor any transit dues on the river, nor maritime or river toll based on the sole fact of navigation, nor any tax on goods on board of ships. There shall only be collected taxes or duties that shall be an equivalent for services rendered to navigation, which taxes or duties shall not be liable to differential treatment. Roads, railways, and parallel canals, constructed to improve the river route, shall have their tolls and charges calculated on the cost of construction and operation and the profits due to the investors, without any favor or distinction in their collection. Regulations to be established for the safety and control of navigation shall be drawn up in such way as to facilitate, as much as possible, the circulation of merchant-ships. The arrangements of the act remain in force in time of war, and neutrals and belligerents shall have free access to the river for purposes of commerce and transit on the roads, railways, and canals, except for the transport of articles contraband of war. An act containing the same provisions was passed in relation to the Niger, except that in the place of a river commission the British Government undertook to apply it to the portion of the stream under her sovereignty or protection, and France to that part subject to her authority. The Conference adjourned, Dec. 22, until the second week in January.

CONGREGATIONALISTS. The following is a summary of the statistics of the Congregational churches in the United States, as they are compiled in the "Congregational Year-Book" for 1885: Number of churches, 4,092; of ministers, 3,889; number of church-members, 401,549; of persons in Sunday-schools, 478,357. The number of additions returned as "by profession" was 17,928; number of baptisms, 8,290 of adults, and 5,801 of infants. The whole amount of benevolent contributions returned by 3,000 churches reporting was $1,528,924; amount of contributions for home expenditures returned, by 3,000 churches, $3,884,106. The net increase of church-members during the year was 5,340; increase of members of Sunday-schools, 11,220; new churches, 177.

The seven theological seminaries at Andover, Mass.; Bangor, Maine; Chicago, Ill.; Hartford, Conn.; Oberlin, Ohio; Oakland, Cal. (Pacific); and New Haven, Conn. (Yale), returned, in 1883, 47 professors, 11 instructors or lecturers, 9 resident licentiates, 16 in the graduating classes, and 284 students. Five of these institutions return an aggregate of 218,000 volumes in their libraries.

American Congregational Union.—The thirty-first annual meeting of the American Congregational Union was held in New York city, May 8th. The Rev. Edwin B. Webb, D. D., of Boston, Mass., was chosen president for the year. The treasurer's receipts for the year had been $105,377, or $4,858 more than the receipts of the previous year, which were considered unusually large. The number of contributing churches was also 258 larger than in the previous year. Grants amounting to $67,545 had been voted to 125 churches, and grants amounting to $103,947 had been paid to 102 churches. Loans amounting to $7,525 had been voted to 22 churches; and loans amounting to $4,822 had been paid to 12 churches, in both cases in aid of the building of parsonages. One hundred and nine applications were still on hand waiting action. The Union had, for the past eighteen years, been organizing churches at the average rate of 184 a year, and aiding in building churches at the average rate of 57 a year. The average rate for the past five years had been 148 churches organized and 71 buildings erected. In the last year, 182 churches had been organized and 100 built. The Rev. C. H. Taintor, of Milford, N. H., had been appointed field secretary of the society for the collection of funds.

American Home Missionary Society.—The fifty-eighth anniversary meeting of the American Home Missionary Society was held in Saratoga Springs, N. Y., June 4th. President Julius H. Seelye, of Amherst College, presided. The total resources of the society for the year had been $429,815, and the expenditures $419,449. The pledges standing against the society amounted to $85,658. Thirteen hundred and forty-two ministers had been employed during the year, of whom 340 had labored in the New England States, 81 in the Middle States, 28 in the Southern States, 87 in the Southwestern States, 779 in the Western States and Territories, and 84 on the Pacific coast. These ministers had served, fully or at stated intervals, 2,930 congregations. Three of them had served colored congregations; and 30 ministers had preached to Welsh, 16 to German, 2 to French, and 2 to Mexican congregations, in their own languages. The organization of 298 new Sunday-schools was reported; 2,069 Sunday-schools were under the special care of the missionaries of the society; and the number of Sunday-school and Bible-class students was "not far from" 116,814. Four thousand and ninety-nine additions to the churches on profession of faith were returned. One hundred and forty-nine new churches had been organized, and 52 churches had become self-supporting. Eight Women's State Home Missionary Societies were co-operating with this society. The plan of co-operation with the American Missionary Association reported by the Committees of Conference of the societies was approved.

American Missionary Association.—The thirty-eighth anniversary of the American Missionary Association was held in Salem, Mass., October 21st. The Hon. William B. Washburn presided. The total receipts of the society for the year had been $287,594, and the expenditures $301,928. A debt of $13,785 was returned. The following is a general summary of the statistics of the missionary work of the Association:

Workers.—Superintendents, 3. Missionaries and teachers—at the South, 423; among the Indians, 45; among the Chinese in California, 27; total, 495.

Churches.—Churches at the South, 95; among the Indians, 4; total, 99. Church-members at the South, 6,420; among the Indians, 274; total, 6,694. Total number Sunday-school pupils, 15,555.

Schools.—Schools at the South, 65; among the Indians, 9; among the Chinese, 15; total, 89. Pupils at the South, 9,758; among the Indians, 458; among the Chinese, 1,864; total, 12,080.

Four of the chartered institutions in the South returned 78 students in theology and 55 in law. New churches and school-houses had been erected in connection with most of the Indian missions, particularly at the Santee agency, at the Ponca reserve, at Fort Sully agency, Cheyenne river agency, and at Fort Berthold mission. A Government boarding-school, of fifty pupils, had been organized at Fort Stevenson, and schools were asked for at Rosebud, Red Cloud, and Standing Rock agencies. Six new churches had been organized and seven new places of worship secured in the South. Of the 76 pastors who had been serving the Southern churches, including those who were serving as professors in colleges, 23 were from the North, and 53 had been raised up in the South in the institutions of the society, while an equal number of men, trained by the teachers of the Association, had been furnished to other denominations. In connection with the recently established work of the Association in the mountain-regions of eastern Kentucky and Tennessee, an academy had been founded at Williamsburg, Ky., in which 169 students were enrolled, and a number of local educational meetings had been held. The Mendi mission in Africa (West Coast), which had been transferred to the Board of Missions of the United Brethren Church, had made good progress under the new administration. The plan of co-operation which had been arranged between committees of this Association and of the American Home Missionary Society (see below) was approved. Fraternal greetings were offered to the Congregational brethren in Sweden and Norway, and the right hand of fellowship to the Ansgarii and mission Swedish churches in the United States.

Relations of the American Home Missionary Society and the American Missionary Association.—The Committees of Conference of the American Home Missionary Society and the American Missionary Association met in Springfield, Mass., December 11, 1883, and adopted the following action concerning the future relations of the two societies and their work:

"Consulting the principle of comity between the two missionary societies, the American Home Missionary Society and the American Missionary Association, and that traditional policy of Congregationalists which ignores caste and color-lines, and also in view of the present relative positions and strength of the two societies, we, the joint committee, give it as our judgment:

"1. That, as heretofore, the principal work of the American Home Missionary Society should be in the West, and that the principal work of the American Missionary Association should be in the South.

"2. Whatever new work may be called for in any locality, should be under the charge of the society already occupying the ground. No exception to this rule should be allowed unless it be by agreement between the two societies.

"3. Concerning any work already established by either society, we would recommend that if either comity, economy, or efficiency will be advanced by it, such transfer of the work should be made as shall bring the work of the societies into harmony with the preceding recommendations."

This action was approved by both societies at their meetings in 1884.

American Board.—The seventy-fifth annual meeting of the American Board of Commissioners for Foreign Missions was held at Columbus, Ohio, October 7th. The Rev. Mark Hopkins, D. D., LL. D., presided. The total receipts of the society for the year had been $538,358, of which $428,851 had come in in the form of donations. An addition of more than a quarter of a million dollars to the funds of the board was expected from a legacy left it by Samuel W. Swett, of Jamaica Plain, Mass. The annual average of the contributions to the treasury of the society during the last ten years, excluding legacies, had been in round numbers $359,000, or about one dollar for each resident member of the Congregational churches throughout the country. About 75 per cent. of the entire contributions were received from the New England States.

The "General Survey" of the work of the board in the mission-fields represented it as generally in a condition of prosperity and progress. In Africa, the Bible had been published complete in the Zulu language, and nearly five hundred copies of the work had been sold at once. The East African mission, which it was intended to push into Umzila's kingdom, had been established at Inhambane, and the location had been found to be a very suitable one. The West Central African mission, at Bihé, had suffered from disturbances, which were, however, believed to be only temporary, and no permanent interruption to the plans of its friends was anticipated. The natives were friendly, while the Portuguese of the coast were hostile, to it. The Micronesian missionary vessel, the Morning Star, had been wrecked, but a new vessel to replace it was on the stocks. In the Turkish missions, the discussions in the previous year (see "Annual Cyclopedia" for 1883, article CONGREGATIONALISTS) of the various questions at issue between the board and the native churches had produced good results and an improved feeling; a better understanding of mutual relations had been attained, and misconceptions on both sides had been cleared up. Conferences of missionaries and representatives of the native churches, which had previously been held to a limited extent, had now been instituted in all the different stations, "with the happiest results." A Home Missionary and Education Society, known as the "Greek Alliance," had been established at Smyrna. Over seventy different publications, amounting in all to more than 11,000,000 pages, had been issued during the year from the press at Constantinople. Among these were about 80,000 copies of the Scriptures or portions of them. Two important evangelical movements were recorded among the old Armenians in the fields of Sivas and Cæsarea, where meetings for young men, congregations for worship and the study of the Scriptures, weekly prayer-meetings and women's prayer-meetings, and a Sunday-school, had been organized and were sustained. In India, forty-three out of seventy-one churches were themselves meeting their current expenses; the church in Bombay was besides supporting a missionary at a point seven hundred miles distant; and the churches of the city of Madura had engaged two evangelists for labor in the outlying districts. In China, the encouraging prospects of the mission of the "Oberlin Band" in the province of Shanse were remarked upon. The Government officers in North China were manifesting a better appreciation of the object and labors of the missionaries, and had changed their attitude toward them. As a whole, through the missionaries of the board and its native ministers, the gospel was preached in twenty-five different languages, and in more than eight hundred towns and cities, on every Lord's day. The following is the general summary of its work for the year: Number of missions, 21; of stations, 79; of out-stations, 747; of ordained missionaries, 158; of physicians not ordained (7 men and 3 women), 10; of other male assistants, 7; of women (wives, 152; unmarried, besides physicians, 102), 254; whole number of laborers sent from the United States, 429; number of native pastors, 142; of native preachers and catechists, 362; of native school-teachers, 1,010; of other native helpers, 307; whole number of native laborers, 1,821; whole number of laborers connected with the missions, 2,260; number of churches, 292; of church-members, 21,176; added during the year, 2,371; whole number from the first, 91,694; number of high-schools, theological seminaries, and station-classes, 50, having an attendance of 2,007 pupils; of boarding-schools for girls, 38, with 1,711 pupils; of common schools, 825, with 30,142 pupils; whole number of pupils, 33,860.

The commission appointed under the direction of the National Council of the Congregational Churches of the United States, "to prepare, in the form of a creed or catechism, or both, a simple, clear, and comprehensive exposition of the truths of the glorious gospel of the blessed God, for the instruction and edification of our churches," in March, 1884, submitted to the churches the following:

Statement of Doctrine.—I. We believe in one God, the Father Almighty, Maker of heaven and earth, and of all things, visible and invisible;

And in Jesus Christ, his only Son, our Lord, who is of one substance with the Father, by whom all things were made:

And in the Holy Spirit, the Lord and Giver of life, who is sent from the Father and Son, and who, together with the Father and Son, is worshiped and glorified.

II. We believe that the providence of God, by which he executes his eternal purposes in the government of the world, is in and over all events; yet so that the freedom and responsibility of man are not impaired, and sin is the act of the creature alone.

III. We believe that man was made in the image of God, that he might know, love, and obey God, and enjoy him forever; that our first parents, by disobedience, fell under the righteous condemnation of God; and that all men are so alienated from God that there is no salvation from the guilt and power of sin, except through God's redeeming grace.

IV. We believe that God would have all men return to him; and to this end he has made himself known, not only through the works of Nature, the course of his providence, and the consciences of men, but also through supernatural revelations made especially to a chosen people, and above all, when the fullness of time was come, through Jesus Christ his Son.

V. We believe that the Scriptures of the Old and New Testaments are the record of God's revelation of himself in the work of redemption; that they were written by men under the special guidance of the Holy Spirit; that they are able to make wise unto salvation; and that they constitute the authoritative standard by which religious teaching and human conduct are to be regulated and judged.

VI. We believe that the love of God to sinful men has found its highest expression in the redemptive work of his Son; who became man, uniting his divine nature with our human nature in one person; who was tempted like other men, yet without sin; who, by his humiliation, his holy obedience, his sufferings, his death on the cross, and his resurrection, became a perfect Redeemer; whose sacrifice of himself for the sins of the world declares the righteousness of God, and is the sole and sufficient ground of forgiveness and of reconciliation with him.

VII. We believe that Jesus Christ, after he had risen from the dead, ascended into heaven, where, as the one mediator between God and man, he carries forward his work of saving men; that he sends the Holy Spirit to convict them of sin, and to lead them to repentance and faith; and that those who, through renewing grace, turn to righteousness, and trust in Jesus Christ as their Redeemer, receive for his sake the forgiveness of their sins, and are made the children of God.

VIII. We believe that those who are thus regenerated and justified, grow in sanctified character through fellowship with Christ, the indwelling of the Holy Spirit, and obedience to the truth; that a holy life is the fruit and evidence of saving faith; and that the believer's hope of continuance in such a life is in the preserving grace of God.

IX. We believe that Jesus Christ came to establish among men the kingdom of God, the reign of truth and love, righteousness and peace; that to Jesus Christ, the Head of this kingdom, Christians are directly responsible in faith and conduct; and that to him all have immediate access, without mediatorial or priestly intervention.

X. We believe that the Church of Christ, invisible and spiritual, comprises all true believers, whose duty it is to associate themselves in churches, for the maintenance of worship, for the promotion of spiritual growth and fellowship, and for the conversion of men; that these churches, under the guidance of the Holy Scriptures, and in fellowship with one another, may determine—each for itself—their organization, statements of belief, and forms of worship; may appoint and set apart their own ministers, and should co-operate in the work which Christ has committed to them for the furtherance of the gospel throughout the world.

XI. We believe in the observance of the Lord's day, as a day of holy rest and worship; in the ministry of the Word; and in the two sacraments, which Christ has appointed for his church: Baptism, to be administered to believers and their children, as the sign of cleansing from sin, of union to Christ, and of the impartation of the Holy Spirit; and the Lord's Supper, as a symbol of his atoning death, a seal of his efficacy, and a means whereby he confirms and strengthens the spiritual union and communion of believers with himself.

XII. We believe in the ultimate prevalence of the kingdom of Christ over all the earth; in the glorious appearing of the great God and our Saviour Jesus Christ; in the resurrection of the dead; and in a final judgment, the issues of which are everlasting punishment and everlasting life.

The commission also submitted for the use of the churches in the admission of members, the following:

Confession of Faith.—"What shall I render unto the Lord for all his benefits toward me? I will take the cup of salvation, and call upon the name of the Lord. I will pay my vows unto the Lord now in the presence of all his people."

"Whosoever therefore shall confess me before men, him will I confess also before my Father, which is in heaven. But whosoever shall deny me before men, him will I also deny before my Father, which is in heaven."

"For with the heart man believeth unto righteousness; and with the mouth confession is made unto salvation."

Dearly beloved, called of God to be his children, through Jesus Christ our Lord, you are here, that, in the presence of God and his people, you may enter into the fellowship and communion of his Church. You do truly repent of your sins; you heartily receive Jesus Christ as your crucified Saviour and risen Lord; you consecrate yourselves unto God, and your life to his service; you accept his Word as your law, and his Spirit as your Comforter and Guide; and trusting in his grace to confirm and strengthen you in all goodness, you promise to do God's holy will, and to walk with this church in the truth and peace of our Lord Jesus Christ.

Accepting, according to the measure of your understanding of it, the system of Christian truth held by the churches of our faith and order, and by this church into whose fellowship you now enter, you join with ancient saints, with the Church throughout the world, and with us, your fellow-believers, in humbly and heartily confessing your faith in the gospel, saying:

I believe in God the Father Almighty, Maker of heaven and earth. And in Jesus Christ, his only Son, our Lord; who was conceived by the Holy Ghost, born of the Virgin Mary; suffered under Pontius Pilate, was crucified, dead, and buried; the third day he rose from the dead; he ascended into heaven; and sitteth at the right hand of God the Father Almighty; from thence he shall come to judge the quick and the dead. I believe in the Holy Ghost; the holy catholic Church; the communion of saints; the forgiveness of sins; the resurrection of the body; and the life everlasting. Amen.

(Then should baptism be administered to those who have not been baptized. Then should those rise who would unite with the church by letter. To them the minister should say:)

Confessing the Lord whom we unitedly worship, you do now renew your self-consecration, and join with us cordially in this, our Christian faith and covenant.

(The members of the church present should rise.)

We welcome you into our fellowship. We promise to watch over you with Christian love. God grant that, loving and being loved, serving and being served, blessing and being blessed, we may be prepared, while we dwell together on earth, for the perfect communion of the saints in heaven.

"Now the God of peace, that brought again from the dead our Lord Jesus, that great shepherd of the sheep, through the blood of the everlasting covenant, make you perfect in every good work to do his will, working in you that which is well-pleasing in his sight, through Jesus Christ; to whom be glory for ever and ever. Amen."

(Jude 24, 25 is proposed as an alternative benediction.)

Congregationalists in Great Britain.—The English "Congregational Year-Book" for 1884 reports 4,015 Congregational churches in England and Wales, of which 998 were in the principality; 101 churches in Scotland; 29 in Ireland; and 13 in the islands in the British seas; besides a large number of evangelistic stations in Scotland and Ireland; making a total of 4,158 churches in the British Islands. The colonies returned 683 churches and preaching-stations. Nineteen new churches were formed during 1883, and 68 new chapels built, or old ones enlarged; 4 mission-halls and 31 new schoolrooms were erected, and 21 chapels and 10 schools begun. The colleges of the denomination returned 451 students in training for the ministry, and ten missionary institutions in heathen lands returned about 300 native theological students.

London Missionary Society.—The annual meeting of the London Missionary Society was held May 15th. The receipts of the society for the year had been £91,414 for general purposes, and £11,148 of special contributions; the expenditures had been £113,402. A large number of deputation visits had been made by the society's agents to the various foreign fields. The foreign secretary had thus visited India, China, and South Africa.

Congregational Union of England and Wales.—The fifty-second annual spring meeting of the Congregational Union of England and Wales was held in London, May 12th. The Rev. Dr. Thomas Rees, of Swansea, was elected President of the Union for the year. The Executive Committee reported that the subscriptions to the Jubilee fund, to March, 1884, had amounted to £305,673. The churches in the Australian colonies had also resolved on the institution of a Jubilee fund, and had obtained £100,000 to be applied to the freeing of chapels from debt and to other objects. The report described a scheme for the education of the young in Bible knowledge which it was proposed to bring before the churches. The subject of lay agency, to which some attention had been paid, was dismissed with the remark that it was outside the sphere of the Union to erect a *quasi*-ecclesiastical authority in the matter, which had better be left to the unfettered action of the churches. The project for delivering non-conformist lectures in university towns, under the joint auspices of the Baptist and Congregational Unions, had not, so far, fulfilled the hopes of its originators. The committee, however, were much encouraged to learn that a few men of eminence at the universities, though not themselves non-conformists, and looking not to the interests of non-conformity, but to the interests of the universities as seats of learning, and to the present condition of religious faith in England, were prepared to welcome the lecturers. The Union had, in conference with the London Missionary Society, resolved upon certain grants to the West Indian churches, and it was prepared, whenever possible, to advocate the claims of that society to support, by reason of its general work. A resolution was adopted in favor of the motions pending in Parliament for the disestablishment of the churches in Wales and Scotland. The Rev. Joseph Parker, D. D., retiring President of the Union, was authorized to convey to Mr. Gladstone, as prime minister, a formal expression of its unabated confidence in him.

The autumnal assembly of the Union met in London, October 7th. The Rev. Dr. Joseph Parker presided. The committee of the Jubilee fund reported that the amount paid in on its account exceeded £350,000. This was £70,000 more than the amount reported in the previous year. Resolutions were adopted recommending the commemoration of the quincentenary of Wycliffe, which would occur in 1884, by sermons on the second Sunday in December, by lectures and public meetings, and by such other means as might be considered most effective. A determination reported by the Colonial Missionary Society to attempt Congregational work among English residents and travelers on the Continent of Europe, was approved. The president delivered an address on the subject of "The Larger Ministry," the aim of which was to show that many men were in the ministry who were not in the pulpit, including in this class Christian legislators, journalists, schoolmasters, lecturers, and philanthropists. Specially appointed papers were read by the Rev. George Sale Reaney and the Rev. Thomas Green, on "The Relation of the Churches to Recent Movements of Thought in regard to the Social and Moral Condition of the Poor." Other papers were read on "What the Churches owe to the Colleges," by Prof. F. E. Anthony; and on "What the Churches expect from the Colleges," by the Rev. R. Craig. The report of the Congregational Total Abstinence Association showed that 1,385 out of 2,589 ministers of the denomination, and 309 out of 354 students in the 12 Congregational colleges, had taken the pledge.

Congregationalists in New South Wales.—The anniversary of the institution of the Congregational jubilee fund, in New South Wales, was celebrated in Sydney by a public demonstration, when the committee reported that $92,015 of the subscriptions had been paid in during the year, and that the debts of six churches had been extinguished. The denominational debts, including expenditures, amounted to £50,290, while the total promises to the jubilee fund, up to the date of the report, were returned at £37,828.

CONGRESS, UNITED STATES. The first session of the Forty-eighth Congress began on Monday, Dec. 3, 1883. The following is a list of members. The dates prefixed indicate the expiration of their terms; the letters D. and R. indicate their politics:

SENATE.

Alabama.

1889, John T. Morgan, D.
1885, James L. Pugh, D.

Arkansas.

1889, A. H. Garland, D.
1885, James D. Walker, D.

California.

1887, John F. Miller, R.
1885, James T. Farley, D.

Colorado.

1889, Thomas M. Bowen, R.
1885, Nathaniel P. Hill, R.

Connecticut.

1887, Joseph R. Hawley, R.
1885, Orville H. Platt, R.

Delaware.

1887, Thomas F. Bayard, D.
1889, Eli Saulsbury, D.

Florida.

1885, Wilkinson Call, D.
1887, Charles W. Jones, D.

Georgia.

1885, Joseph E. Brown, D.
1889, Alfred H. Colquitt, D.

Illinois.

1889, Shelby M. Cullom, R.
1885, John A. Logan, R.

Indiana.

1887, Benjamin Harrison, R.
1885, D. W. Voorhees, D.

Iowa.

1885, William B. Allison, R.
1889, James F. Wilson, R.

Kansas.

1885, John J. Ingalls, R.
1889, P. B. Plumb, R.

Kentucky.

1889, James B. Beck, D.
1885, John S. Williams, D.

Louisiana.

1889, Randall L. Gibson, D.
1885, Benjamin F. Jonas, D.

Maine.

1889, William P. Frye, R.
1887, Eugene Hale, R.

Maryland.

1887, Arthur P. Gorman, D.
1885, James B. Groome, D.

Massachusetts.

1887, Henry L. Dawes, R.
1889, George F. Hoar, R.

Michigan.

1887, Omar D. Conger, R.
1889, Thomas W. Palmer, R.

Minnesota.

1887, S. J. R. McMillan, R.
1889, Dwight M. Sabin, R.

Mississippi.

1887, James Z. George, D.
1889, Lucius Q. C. Lamar, D.

Missouri.

1887, Francis M. Cockrell, D.
1885, George G. Vest, D.

Nebraska.

1889, Charles F. Manderson, R.
1887, Chas. H. Van Wyck, R.

Nevada.

1887, James G. Fair, D.
1885, John P. Jones, R.

New Hampshire.

1885, Henry W. Blair, R.
1889, Austin F. Pike, R.

New Jersey.

1889, John R. McPherson, D.
1887, William J. Sewell, R.

New York.

1885, Elbridge G. Lapham, R.
1887, Warner Miller, R.

North Carolina.

1889, Matt. W. Ransom, D.
1885, Zebulon B. Vance, D.

Ohio.

1885, George H. Pendleton, D.
1887, John Sherman, R.

Oregon.

1889, Joseph N. Dolph, R.
1885, James H. Slater, D.

Pennsylvania.

1887, John I. Mitchell, R.
1885, J. Donald Cameron, R.

Rhode Island.

1887, Nelson W. Aldrich, R.
1889, Henry B. Anthony, R.

South Carolina.

1889, M. C. Butler, D.
1885, Wade Hampton, D.

Tennessee.

1889, Isham G. Harris, D.
1887, Howell E. Jackson, D.

Texas.

1889, Richard Coke, D.
1887, Samuel B. Maxey, D.

Vermont.

1887, George F. Edmunds, R.
1885, Justin S. Morrill, R.

Virginia.

1887, William Mahone, R.
1889, H. H. Riddleberger, R.

West Virginia.

1887, Johnson N. Camden, D.
1889, John E. Kenna, D.

Wisconsin.

1885, Angus Cameron, R.
1887, Philetus Sawyer, R.

Republicans, 40; Democrats, 36.

HOUSE OF REPRESENTATIVES.

Alabama.

1, James T. Jones, D.
2, Hilary A. Herbert, D.
3, William C. Oates, D.
4, Charles M. Shelley, D.
5, Thomas Williams, D.
6, Goldsmith W. Hewitt, D.
7, William H. Forney, D.
8, Luke Pryor, D.

Arkansas.

Clifton R. Breckinridge, D.
1, Poindexter Dunn, D.
2, James K. Jones, D.
3, John H. Rogers, D.
4, Samuel W. Peel, D.

California.

Charles A. Sumner, D.
John R. Glascock, D.
1, William S. Rosecrans, D.
2, James H. Budd, D.
3, Barclay Henley, D.
4, Pleasant B. Tully, D.

Colorado.

James B. Belford, R.

Connecticut.

1, William W. Eaton, D.
2, Charles L. Mitchell, D.
3, John T. Wait, R.
4, Edward W. Seymour, D.

Delaware.

Charles B. Lore, D.

Florida.

1, Robert H. M. Davidson, D.
2, Horatio Bisbee, Jr., R.

Georgia.

Thomas Hardeman, D.
1, John C. Nicholls, D.
2, Henry G. Turner, D.
3, Charles F. Crisp, D.
4, Hugh Buchanan, D.
5, Nathaniel J. Hammond, D
6, James H. Blount, D.
7, Judson C. Clements, D.
8, Seaborn Reese, D.
9, Allen D. Candler, D.

Illinois.

1, Ransom W. Dunham, R.
2, John F. Finerty, I. D.
3, George R. Davis, R.
4, George E. Adams, R.
5, Reuben Ellwood, R.
6, Robert R. Hitt, R.
7, Thomas J. Henderson, R.
8, William Cullen, R.
9, Lewis E. Payson, R.
10, N. E. Worthington, D.
11, William H. Neece, D.
12, James M. Riggs, D.
13, William M. Springer, D.
14, Jonathan H. Rowell, R.
15, Joseph G. Cannon, R.
16, Aaron Shaw, D.
17, Samuel W. Moulton, D.
18, William R. Morrison, D.
19, R. W. Townshend, D.
20, John R. Thomas, R.

Indiana.

1, John J. Kleiner, D.
2, Thomas R. Cobb, D.
3, Strother M. Stockslager, D.
4, William S. Holman, D.
5, Courtland C. Matson, D.
6, Thomas M. Browne, R.
7, Stanton J. Peelle, R.; W. E. English, D. successful contestant.
8, John E. Lamb, D.
9, Thomas B. Ward, D.
10, Thomas J. Wood, D.
11, George W. Steele, R.
12, Robert Lowry, D.
13, William H. Calkins, R.

Iowa.

1, Moses A. McCoid. R.
2, Jeremiah H. Murphy, D.
3, David B. Henderson, R.
4, Luman H. Weller, Gr.
5, James Wilson, R.
6, John C. Cook, D.
7, John A. Kasson, R.
8, William P. Hepburn, R.
9, William H. M. Pusey, D.
10, Adoniram J. Holmes, R.
11, Isaac S. Struble, R.

Kansas.

Edmund N. Morrill, R.
Lewis Hanback, R.
Samuel R. Peters, R.
Bishop W. Perkins, R.
1, John A. Anderson. R.
2, E. H. Funston, R.
3, Thomas Ryan, R.

Kentucky.

1, Oscar Turner, D.
2, James F. Clay, D.
3, John E. Halsell, D.
4, Thomas A. Robertson, D.
5, Albert S. Willis, D.
6, John G. Carlisle, D.
7, J. C. S. Blackburn, D.
8, P. B. Thompson, Jr., D.
9, William W. Culbertson, R
10, John D. White, R.
11, Frank L. Wolford, D.

Louisiana.

1, Carleton Hunt, D.
2. E. John Ellis, D.
3, W. P. Kellogg, R.
4, Newton C. Blanchard, D.
5. J. Floyd King, D.
6, Edward T. Lewis, D.

Maine.

Thomas B. Reed, R.
Nelson Dingley, Jr., R.
Charles A. Boutelle, R.
Seth L. Milliken, R.

Maryland.

1, George W. Covington, D.
2, J. F. C. Talbot, D.
3, Fetter S. Hoblitzell, D.
4, John V. L. Findlay, D.
5, Hart B. Holton, R.
6, Louis E. McComas, R.

Massachusetts.

1, Robert T. Davis, R.
2, John D. Long, R.
3, Ambrose A. Ranney, R.
4, Patrick A. Collins, D.
5, Leopold Morse, D.
6, Henry B. Lovering, D.
7, Eben F. Stone, R.
8, William A. Russell, R.
9, Theodore Lyman, I. R.
10, William W. Rice, R.
11, William Whiting, R.
12, George D. Robinson, R., resigned Jan. 7, 1884, succeeded by Francis S. Rockwell, R.

Michigan.

1, William C. Maybury, D.
2, Nathaniel B. Eldredge, D.
3, Edward S. Lacey, R.
4, George L. Yaple, D.
5, Julius Houseman, D.
6, Edwin B. Winans, D.
7, Ezra C. Carleton, D.
8, Roswell G. Horr, R.
9, Byron M. Cutcheon, R.
10, Herschel H. Hatch, R.
11, Edward Breitung, R.

Minnesota.

1, Milo White, R.
2, James B. Wakefield, R.
3, Horace B. Strait, R.
4, W. D. Washburn, R.
5, Knute Nelson, R.

Mississippi.

1, Henry L. Muldrow, D.
2, James R. Chalmers, R., seated June 25, 1884.
3, Elza Jeffords, R.
4, Hernando D. Money, D.
5, Otho R. Singleton, D.
6, Henry S. Van Eaton, D.
7, Ethelbert Barksdale, D.

Missouri.

1, William H. Hatch, D.
2, Armstead M. Alexander, D.
3, Alexander M. Dockery, D.
4, James N. Burnes, D.
5, Alexander Graves, D.
6, John Cosgrove, D.
7, Aylett H. Buckner, D.
8, John J. O'Neill, D.
9, James O. Broadhead, D.
10, Martin L. Clardy, D.
11, Richard P. Bland, D.
12, Charles H. Morgan, D.
13, Robert W. Fyan, D.
14, Lowndes H. Davis, D.

Nebraska.

1, Archibald J. Weaver, R.
2, James Laird, R.
3, Edward K. Valentine, R.

Nevada.

George W. Cassidy, D.

New Hampshire.

1, Martin A. Haynes, R.
2, Ossian Ray, R.

New Jersey.

1, Thomas M. Ferrell, D.
2, J. Hart Brewer, R.
3, John Kean, Jr., R.
4, Benjamin F. Howey, R.
5, William Walter Phelps, R.
6, William H. F. Fiedler, D.
7, William McAdoo, D.

New York.

Henry W. Slocum, D.
1, Perry Belmont, D.
2, William E. Robinson, D.
3, Darwin R. James, R.
4, Felix Campbell, D.
5, Nicholas Muller, D.
6, Samuel S. Cox, D.
7, William Dorsheimer, D.
8, John J. Adams, D.
9, John Hardy, D.
10, Abram S. Hewitt, D.
11, Orlando B. Potter, D.
12, Waldo Hutchins, D.
13, John H. Ketcham, R.
14, Lewis Beach, D.
15, John H. Bagley, Jr., D.
16, Thomas J. Van Alstyne, D.
17, Henry G. Burleigh, R.
18, Frederick A. Johnson, R.
19, Abraham X. Parker, R.
20, Edward Wemple, D.
21, George W. Ray, R.
22, Charles R. Skinner, R.
23, J. Thomas Spriggs, D.
24, Newton W. Nutting, R.
25, Frank Hiscock, R.
26, Sereno E. Payne, R.
27, James W. Wadsworth, R.
28, Stephen C. Millard, R.
29, John Arnot, D.
30, Halbert S. Greenleaf, D.
31, Robert S. Stevens, D.
32, William F. Rogers, D.
33, Francis B. Brewer, R.

North Carolina.

Risden T. Bennett, D.
1, Thomas G. Skinner, D.
2, James E. O'Hara, R.
3, Wharton J. Green, D.
4, William R. Cox, D.
5, Alfred M. Scales, D.
6, Clement Dowd, D.
7, Tyre York, I. R.
8, Robert B. Vance, D.

Ohio.

1, John F. Follett, D.
2, Isaac M. Jordan, D.
3, Robert M. Murray, D.
4, Benjamin Le Fevre, D.
5, George E. Seney, D.
6, William D. Hill, D.

7, Henry L. Morey, R.; James E. Campbell, successful contestant, D.
8, J. Warren Keifer, R.
9, James S. Robinson, R.
10, Frank H. Hurd, D.
11, John W. McCormick, R.
12, Alphonso Hart, R.
13, George L. Converse, D.
14, George W. Geddes, D.
15, A. J. Warner, D.
16, Beriah Wilkins, D.
17, Joseph D. Taylor, R.
18, William McKinley, Jr., R.; Jonathan H. Wallace, D., successful contestant.
19, Ezra B. Taylor, R.
20, David R. Paige, D.
21, Martin A. Foran, D.

Oregon.

Melvin C. George, R.

Pennsylvania.

Mortimer F. Elliott, D.
1, Henry H. Bingham, R.
2, Charles O'Neill, R.
3, Samuel J. Randall, D.
4, William D. Kelley, R.
5, Alfred C. Harmer, R.
6, James B. Everhart, R.
7, Isaac Newton Evans, R.
8, Daniel Ermentrout, D.
9, A. Herr Smith, R.
10, William Mutchler, D.
11, John B. Storm, D.
12, Daniel W. Connolly, D.
13, Charles N. Brumm, Gr. R.
14, Samuel F. Barr, R.
15, George A. Post, D.
16, William W. Brown, R.
17, Jacob M. Campbell, R.
18, Louis E. Atkinson, R.
19, William A. Duncan, D.
20, Andrew G. Curtin, D.
21, Charles E. Boyle, D.
22, James H. Hopkins, D.
23, Thomas M. Bayne, R.
24, George V. Lawrence, R.
25, John D. Patton, D.
26, Samuel H. Miller, R.
27, Samuel M. Brainerd, R.

Rhode Island.

1, Henry J. Spooner, R.
2, Jonathan Chace, R.

South Carolina.

1, Samuel Dibble, D.
2, George D. Tillman, D.
3, D. Wyatt Aiken, D.
4, John H. Evins, D.
5, John J. Hemphill, D.
6, George W. Dargan, D.
7, Edmund W. M. Mackey. Died Jan. 27, 1884, succeeded by Robert Smalls, R.

Tennessee.

1, Augustus H. Pettibone, R.
2, Leonidas C. Houk, R.
3, George G. Dibrell, D.
4, Benton McMillin, D.
5, Richard Warner, D.
6, Andrew J. Caldwell, D.
7, John G. Ballentine, D.
8, John M. Taylor, D.
9, Rice A. Pierce, D.
10, Casey Young, D.

Texas.

1, Charles Stewart, D.
2, John H. Reagan, D.
3, James H. Jones, D.
4, David B. Culberson, D.
5, J. W. Throckmorton, D.
6, Olin Wellborn, D.
7, Thomas P. Ochiltree, I.
8, James F. Miller, D.
9, Roger Q. Mills, D.
10, John Hancock, D.
11, Samuel W. T. Lanham, D.

Vermont.

1, John W. Stewart, R.
2, Luke P. Poland, R.

Virginia.

John S. Wise, R.
1, Robert M. Mayo; G. T. Garrison, D., successful contestant.
2, Harry Libby, R.
3, George D. Wise, D.
4, Benjamin S. Hooper, R.
5, George C. Cabell, D.
6, J. Randolph Tucker, D.
7, Charles T. O'Ferrall, D.
8, John S. Barbour, D.

West Virginia.

1, Nathan Goff, Jr., R.
2, William L. Wilson, D.
3, Charles P. Snyder, D.
4, Eustace Gibson, D.

Wisconsin.

1, John Winans, D.
2, Daniel H. Sumner, D.
3, Burr W. Jones, D.
4, Peter V. Deuster, D.
5, Joseph Rankin, D.
6, Richard Guenther, R.
7, Gilbert M. Woodward, D.
8, William T. Price, R.
9, Isaac Stephenson, R.

Those Congressmen without a district assigned to them in the list were elected at large.

Territorial Delegates.

Arizona—Granvill H. Oury, D.
Dakota—John B. Raymond, R.
Idaho—Theodore F. Singiser, R.
Montana—Martin Maginnis, D.
Washington—T. H. Brents, R.
New Mexico—Tranquilino Luna; F. A. Manzanares, D., successful contestant.
Utah—John T. Caine, D.
Wyoming—M. E. Post, D.

Recapitulation.

Democrats	201	Independents	4
Republicans	119	Greenbacker	1

The Clerk presented the following list of changes between the election of the Forty-eighth Congress and its first meeting:

DISTRICT.	NAME.	Date of vacancy.	Successor.
First Alabama	Thomas H. Herndon*	March 28, 1883	James T. Jones.
Sixth Iowa	Marsena E. Cutts*	August 31, 1883	John C. Cook.
Sixth Louisiana	Andrew S. Herron*	November 27, 1882	Edward T. Lewis.
First North Carolina	Walter R. Pool*	August 25, 1883	
Seventeenth Ohio	Jonathan T. Updegraff*	November 30, 1882	Joseph D. Taylor.
Seventh Virginia	John Paul†	September 5, 1883	C. T. O'Ferrall.
Third West Virginia	John E. Kenna†	March 4, 1883	Charles P. Snyder.

* Died. † Resigned.

Organization.—The Senate was called to order by the president *pro tempore*, George F. Edmunds. Dec. 13, 1883, that gentleman, Senator Ingalls being in the chair, offered a resolution that the Senate proceed to elect a president *pro tempore;* Jan. 14, 1884, the resolution was carried, and Henry B. Anthony was chosen. This action was taken out of compliment to Mr. Anthony, who seemed entitled to the honor by length of service, but was known to be unfit for the position on account of the precarious condition of his health. When elected, he immediately declined to accept the position tendered, and Mr. Edmunds was once more chosen president *pro tempore*, the Democrats voting for George H. Pendleton. There was some discussion as to whether any vacancy existed after the declination of Mr. Anthony. It was the opinion of Messrs. Sherman, Hoar, and Dawes, that no vacancy had been made by the election of Mr. Anthony, though as a measure of precaution they were willing to re-elect Mr. Edmunds. They did not deny the right of the Senate to change its presiding officer at any time. Messrs. Ingalls and Bayard maintained that the election of Mr. Anthony and his declination left the position vacant *ipso facto*. Mr. Jones, of Florida, argued that no vacancy existed when Mr. Anthony was chosen, and that none could exist except through the resignation of Mr. Edmunds. He said: "The Senator from Kansas a while ago stated that it had been the custom for this body to exercise its power of removing its presiding officer. I think that that rule has been one of very recent date. I think, sir, that the history of this body will show that the best minds that ever occupied seats in it were, until a few years ago, clearly of the opinion that when the Senate elected a Senator to the position of president *pro tempore* of this body in the absence of the Vice-President of the United States, or when he entered the presidential office, he should hold until the office became again constitutionally vacant. That was the deliberate opinion of no less a man than William H. Seward, expressed on this floor."

Dec. 18, 1883, the following officers of the Senate were chosen: Anson G. McCook, of New York, Secretary; Charles W. Johnson, of Minnesota, Chief Clerk; James R. Young, of Pennsylvania, principal Executive Clerk; the Rev. Elias De Witt Huntley, of the District of Columbia, Chaplain; William P. Canaday, of North Carolina, Sergeant-at-Arms. These officers were appointed by resolution, and selected by a strict party vote; some of the Democratic Senators opposed any change of Senate officers as inconsistent with the civil-service reform legislation of the previous Congress.

The House of Representatives organized by choosing John G. Carlisle, of Kentucky, Speaker, Dec. 3, 1883. He received 190 votes against 113 votes for J. Warren Keifer, of Ohio. George D. Robinson received two votes, and Messrs. Lacey, Wadsworth, and Wise, one each. Thirteen members failed to vote. The following subordinate officers were chosen December 4: John B. Clark, Jr., of Missouri, Clerk; John P. Leedom, of Ohio, Sergeant-at-Arms; J. G. Wintersmith, of Texas, Door-keeper; Lycurgus Dalton, of Indiana, Postmaster; Rev. J. S. Lindsay, of the District of Columbia, Chaplain.

As the election of Mr. Carlisle to the speakership was the result of a sharp contest within the lines of the Democratic party, which seemed to involve the issue of tariff legislation, much political significance was attached to the following paragraph of Mr. Carlisle's speech on taking the chair:

"I am sure, gentlemen, that all matters of legislation presented during this Congress will receive from you such careful consideration as the magnitude and character of the interests involved require, and that your action upon them will be wise, conservative, and patriotic. Sudden and radical changes in the laws and regulations affecting the commercial and industrial interests of the people ought never to be made unless imperatively demanded by some great public emergency, and in my opinion, under existing circumstances, such changes would not be favorably received by any considerable number of those who have given serious attention to the subject. Many reforms are undoubtedly necessary, and it will be your duty, after a careful examination of the whole subject in all its bearings, to decide how far they shall extend, and when and in what manner they shall be made. If there are any who fear that your action upon this or any other subject will be actually injurious to any interest, or even afford reasonable cause for alarm, I am quite sure that they will be agreeably disappointed."

The President's Message.—The third annual message of President Arthur was submitted to Congress, Dec. 4, 1883, as follows:

To the Congress of the United States:

At the threshold of your deliberations I congratulate you upon the favorable aspect of the domestic and foreign affairs of this Government.

Our relations with other countries continue to be upon a friendly footing.

With the Argentine Republic, Austria, Belgium, Brazil, Denmark, Hayti, Italy, Santo Domingo, and

Sweden and Norway, no incident has occurred which calls for special comment. The recent opening of new lines of telegraphic communication with Central America and Brazil permitted the interchange of messages of friendship with the governments of those countries.

During the year there have been perfected and proclaimed consular and commercial treaties with Servia, and a consular treaty with Roumania, thus extending our intercourse with the Danubian countries, while our Eastern relations have been put upon a wider basis by treaties with Corea and Madagascar. The new boundary-survey treaty with Mexico, a trade-mark convention and a supplementary treaty of extradition with Spain, and conventions extending the duration of the Franco-American Claims Commission, have also been proclaimed.

Notice of the termination of the fisheries articles of the Treaty of Washington was duly given to the British Government, and the reciprocal privileges and exemptions of the treaty will accordingly cease on July 1, 1885. The fisheries industries, pursued by a numerous class of our citizens on the northern coasts both of the Atlantic and Pacific Oceans, are worthy of the fostering care of Congress. Whenever brought into competition with the like industries of other countries, our fishermen, as well as our manufacturers of fishing appliances and preparers of fish products, have maintained a foremost place. I suggest that Congress create a commission to consider the general question of our rights in the fisheries and the means of opening to our citizens, under just and enduring conditions, the richly stocked fishing waters and sealing-grounds of British North America.

Question has arisen touching the deportation to the United States from the British Islands, by governmental or municipal aid, of persons unable there to gain a living and equally a burden on the community here. Such of these persons as fall under the pauper class as defined by law have been sent back in accordance with the provisions of our statutes. Her Majesty's Government has insisted that precautions have been taken before shipment to prevent these objectionable visitors from coming hither without guarantee of support by their relatives in this country. The action of the British authorities in applying measures for relief has, however, in so many cases proved ineffectual, and especially so in certain recent instances of needy emigrants reaching our territory through Canada, that a revision of our legislation upon this subject may be deemed advisable. Correspondence relative to the Clayton-Bulwer treaty has been continued and will be laid before Congress.

The legislation of France against the importation of prepared swine products from the United States has been repealed. That result is due no less to the friendly representations of this Government than to a growing conviction in France that the restriction was not demanded by any real danger to health.

Germany still prohibits the introduction of all swine products from America. I extended to the Imperial Government a friendly invitation to send experts to the United States to inquire whether the use of those products was dangerous to health. This invitation was declined. I have believed it of such importance, however, that the exact facts should be ascertained and promulgated, that I have appointed a competent commission to make a thorough investigation of the subject. Its members have shown their public spirit by accepting their trust without pledge of compensation, but I trust that Congress will see in the national and international bearings of the matter a sufficient motive for providing at least for reimbursement of such expenses as they may necessarily incur.

The coronation of the Czar at Moscow afforded to this Government an occasion for testifying its continued friendship by sending a special envoy and a representative of the Navy to attend the ceremony.

While there have arisen during the year no grave questions affecting the status in the Russian Empire of American citizens of other faith than that held by the national church, this Government remains firm in its conviction that the rights of its citizens abroad should be in nowise affected by their religious belief.

It is understood that measures for the removal of the restrictions which now burden our trade with Cuba and Porto Rico are under consideration by the Spanish Government.

The proximity of Cuba to the United States, and the peculiar methods of administration which there prevail, necessitate constant discussion and appeal on our part from the proceedings of the insular authorities. I regret to say that the just protests of this Government have not as yet produced satisfactory results.

The commission appointed to decide certain claims of our citizens against the Spanish Government, after the recognition of a satisfactory rule as to the validity and force of naturalization in the United States, has finally adjourned. Some of its awards, though made more than two years ago, have not yet been paid. Their speedy payment is expected.

Claims to a large amount which were held by the late commission to be without its jurisdiction have been diplomatically presented to the Spanish Government. As the action of the colonial authorities, which has given rise to these claims, was admittedly illegal, full reparation for the injury sustained by our citizens should be no longer delayed.

The case of the Masonic has not yet reached a settlement. The Manila court has found that the proceedings of which this Government has complained were unauthorized, and it is hoped that the Government of Spain will not withhold the speedy reparation which its sense of justice should impel it to offer for the unusual severity and unjust action of its subordinate colonial officers in the case of this vessel.

The Helvetian Confederation has proposed the inauguration of a class of international treaties for the referment to arbitration of grave questions between nations. This Government has assented to the proposed negotiation of such a treaty with Switzerland.

Under the Treaty of Berlin, liberty of conscience and civil rights are assured to all strangers in Bulgaria. As the United States have no distinct conventional relations with that country and are not a party to the treaty, they should, in my opinion, maintain diplomatic representation at Sofia for the improvement of intercourse and the proper protection of the many American citizens who resort to that country as missionaries and teachers. I suggest that I be given authority to establish an agency and consulate-general at the Bulgarian capital.

The United States are now participating in a revision of the tariffs of the Ottoman Empire. They have assented to the application of a license-tax to foreigners doing business in Turkey, but have opposed the oppressive storage-tax upon petroleum entering the ports of that country.

The government of the Khedive has proposed that the authority of the mixed judicial tribunals in Egypt be extended so as to cover citizens of the United States accused of crime who are now triable before consular courts. This Government is not indisposed to accept the change, but believes that its terms should be submitted for criticism to the commission appointed to revise the whole subject.

At no time in our national history has there been more manifest need of close and lasting relations with a neighboring state than now exists with respect to Mexico. The rapid influx of our capital and enterprise into that country shows, by what has already been accomplished, the vast reciprocal advantages which must attend the progress of its internal development. The treaty of commerce and navigation of 1848 has been terminated by the Mexican Government, and in the absence of conventional engagements the rights of our citizens in Mexico now depend upon the domestic statutes of that republic. There have been instances of harsh enforcement of the laws against our vessels and citizens in Mexico, and of denial of the diplomatic resort for their protection. The initial step toward a better understanding has been taken in the negotiation by the commission authorized by Congress of a treaty, which is still before the Senate awaiting its approval.

The provisions for the reciprocal crossing of the frontier by the troops in pursuit of hostile Indians have been prolonged for another year. The operations of the forces of both governments against these savages have been successful, and several of their most dangerous bands have been captured or dispersed by the skill and valor of United States and Mexican soldiers fighting in a common cause.

The convention for the resurvey of the boundary from the Rio Grande to the Pacific having been ratified and exchanged, the preliminary reconnaissance therein stipulated has been effected. It now rests with Congress to make provision for completing the survey and relocating the boundary monuments.

A convention was signed with Mexico on July 13, 1882, providing for the rehearing of the cases of Benjamin Weil and the Abra Silver Mining Company, in whose favor awards were made by the late American and Mexican Claims Commission. That convention still awaits the consent of the Senate. Meanwhile, because of those charges of fraudulent awards which have made a new commission necessary, the Executive has directed the suspension of payments of the distributive quota received from Mexico.

Our geographical proximity to Central America and our political and commercial relations with the states of that country justify, in my judgment, such a material increase of our consular corps as will place at each capital a consul-general.

The contest between Bolivia, Chili, and Peru has passed from the stage of strategic hostilities to that of negotiation, in which the counsels of this Government have been exercised. The demands of Chili for absolute cession of territory have been maintained, and accepted by the party of General Iglesias to the extent of concluding a treaty of peace with the Government of Chili in general conformity with the terms of the protocol signed in May last between the Chilian commander and General Iglesias. As a result of the conclusion of this treaty, General Iglesias has been formally recognized by Chili as President of Peru, and his government installed at Lima, which has been evacuated by the Chilians. A call has been issued by General Iglesias for a representative assembly to be elected on the 13th of January, and to meet at Lima on the 1st of March next. Meanwhile the provisional government of General Iglesias has applied for recognition to the principal powers of America and Europe. When the will of the Peruvian people shall be manifested, I shall not hesitate to recognize the government approved by them.

Diplomatic and naval representatives of this Government attended at Caracas the centennial celebration of the birth of the illustrious Bolivar. At the same time the inauguration of the statue of Washington in the Venezuelan capital testified to the veneration in which his memory is there held.

Congress at its last session authorized the Executive to propose to Venezuela a reopening of the awards of the mixed commission of Caracas. The departure from this country of the Venezuelan minister has delayed the opening of negotiations for reviving the commission. This Government holds that until the establishment of a treaty upon this subject, the Venezuelan Government must continue to make the payments provided for in the convention of 1866.

There is ground for believing that the dispute growing out of the unpaid obligations due from Venezuela to France will be satisfactorily adjusted. The French Cabinet has proposed a basis of settlement which meets my approval, but as it involves a recasting of the annual quotas of the foreign debt, it has been deemed advisable to submit the proposal to the judgment of the Cabinets of Berlin, Copenhagen, The Hague, London, and Madrid.

At the recent coronation of his Majesty King Kalakaua, this Government was represented both diplomatically and by the formal visit of a vessel of war.

The question of terminating or modifying the existing reciprocity treaty with Hawaii is now before Congress. I am convinced that the charges of abuses and frauds under that treaty have been exaggerated, and I renew the suggestion of last year's message, that the treaty be modified wherever its provisions have proved onerous to legitimate trade between the two countries. I am not disposed to favor the entire cessation of the treaty relations which have fostered good-will between the countries, and contributed toward the equality of Hawaii in the family of nations.

In pursuance of the policy declared by this Government of extending our intercourse with the Eastern nations, legations have during the past year been established in Persia, Siam, and Corea. It is probable that permanent missions of those countries will ere long be maintained in the United States. A special embassy from Siam is now on its way hither.

Treaty relations with Corea were perfected by the exchange at Seôul, on the 19th of May last, of the ratifications of the lately concluded convention, and envoys from the King of Tah Chosun have visited this country and received a cordial welcome. Corea, as yet unacquainted with the methods of Western civilization, now invites the attention of those interested in the advancement of our foreign trade, as it needs the implements and products which the United States are ready to supply. We seek no monopoly of its commerce and no advantages over other nations, but as the Chosunese, in reaching for a higher civilization, have confided in this republic, we can not regard with indifference any encroachment on their rights.

China, by the payment of a money indemnity, has settled certain of the long-pending claims of our citizens, and I have strong hopes that the remainder will soon be adjusted.

Questions have arisen touching the rights of American and other foreign manufacturers in China under the provisions of treaties which permit aliens to exercise their industries in that country. On this specific point our own treaty is silent, but under the operation of the most-favored-nation clause, we have like privileges with those of other powers. While it is the duty of the Government to see that our citizens have the full enjoyment of every benefit secured by treaty, I doubt the expediency of leading in a movement to constrain China to admit an interpretation which we have only an indirect treaty right to exact. The transference to China of American capital for the employment there of Chinese labor would in effect inaugurate a competition for the control of markets now supplied by our home industries.

There is good reason to believe that the law restricting the immigration of Chinese has been violated, intentionally or otherwise, by the officials of China upon whom is devolved the duty of certifying that the immigrants belong to the excepted classes.

Measures have been taken to ascertain the facts incident to this supposed infraction, and it is believed that the Government of China will co-operate with the United States in securing the faithful observance of the law.

The same considerations which prompted Congress at its last session to return to Japan the Simonoseki indemnity seems to me to require at its hands like action in respect to the Canton indemnity fund, now amounting to $300,000.

The question of the general revision of the foreign treaties of Japan has been considered in an international conference held at Tokio, but without definite result as yet. This Government is disposed to concede the requests of Japan to determine its own tariff duties, to provide such proper judicial tribunals as may commend themselves to the Western powers for the trial of causes to which foreigners are parties, and to assimilate the terms and duration of its treaties to those of other civilized states.

Through our ministers at London and at Monrovia, this Government has endeavored to aid Liberia in its differences with Great Britain touching the northwestern boundary of that republic. There is a prospect of adjustment of the dispute by the adoption of the Mannah river as the line. This arrangement is a compromise of the conflicting territorial claims, and takes from Liberia no country over which it has maintained effective jurisdiction.

The rich and populous valley of the Congo is being opened to commerce by a society called the International African Association, of which the King of the Belgians is the president and a citizen of the United States the chief executive officer. Large tracts of territory have been ceded to the association by native chiefs, roads have been opened, steamboats placed on the river, and the *nuclei* of states established at twenty-two stations under one flag, which offers freedom to commerce and prohibits the slave-trade. The objects of the society are philanthropic. It does not aim at permanent political control, but seeks the neutrality of the valley. The United States can not be indifferent to this work nor to the interests of their citizens involved in it. It may become advisable for us to cooperate with other commercial powers in promoting the rights of trade and residence in the Congo valley free from the interference or political control of any one nation.

In view of the frequency of invitations from foreign governments to participate in social and scientific congresses for the discussion of important matters of general concern, I repeat the suggestion of my last message, that provision be made for the exercise of discretionary power by the Executive in appointing delegates to such convocations. Able specialists are ready to serve the national interests in such capacity without personal profit or other compensation than the defrayment of expenses actually incurred, and this a comparatively small annual appropriation would suffice to meet.

I have alluded in my previous messages to the injurious and vexatious restrictions suffered by our trade in the Spanish West Indies. Brazil, whose natural outlet for its great national staple, coffee, is in and through the United States, imposes a heavy export duty upon that product. Our petroleum exports are hampered in Turkey and in other Eastern ports by restrictions as to storage and by onerous taxation. For these mischiefs adequate relief is not always afforded by reciprocity treaties like that with Hawaii or that lately negotiated with Mexico and now awaiting the action of the Senate. Is it not advisable to provide some measure of equitable retaliation in our relations with governments which discriminate against our own? If, for example, the Executive were empowered to apply to Spanish vessels and cargoes from Cuba and Porto Rico the same rules of treatment and scale of penalties for technical faults which are applied to our vessels and cargoes in the Antilles, a resort to that course might not be barren of good results.

The report of the Secretary of the Treasury gives a full and interesting exhibit of the financial condition of the country.

It shows that the ordinary revenues from all sources for the fiscal year ended June 30, 1883, amounted to		$398,287,581 95
Whereof there was received:		
From customs	$214,706,496 93	
From internal revenue	144,720,368 98	
From sales of public lands	7,955,864 42	
From tax on circulation and deposits of national banks	9,111,008 85	
From profits on coinage, bullion deposits, and assays	4,460,205 17	
From other sources	17,333,637 60	
Total		$398,287,581 95

For the same period the ordinary expenditures were:

For civil expenses	$22,343,285 76
For foreign intercourse	2,419,275 24
For Indians	7,362,590 34
For pensions	66,012,573 64
For the military establishment, including river and harbor improvements and arsenals	48,911,382 93
For the naval establishment, including vessels, machinery, and improvements at navy-yards	15,283,437 17
For miscellaneous expenditures, including public buildings, lighthouses, and collecting the revenue	40,098,432 73
For expenditures on account of the District of Columbia	3,817,028 48
For interest on the public debt	59,160,131 25
Total	$265,408,137 54
Leaving a surplus revenue of	$132,879,444 41
Which, with an amount drawn from the cash balance in the Treasury of	1,299,312 55
Making	$134,178,756 96
Was applied to the redemption—	
Of bonds for the sinking fund	$44,850,700 00
Of fractional currency for the sinking fund	46,556 96
Of funded loan of 1881, continued at 3½ per cent	65,380,250 00
Of loan of July and August, 1861, continued at 3½ per cent	20,594,600 00
Of funded loan of 1907	1,418,850 00
Of funded loan of 1881	719,150 00
Of loan of February, 1861	18,000 00
Of loan of July and August, 1861	266,600 00
Of loan of March, 1863	116,850 00
Of loan of July, 1882	47,650 00
Of five-twenties of 1862	10,300 00
Of five-twenties of 1864	7,050 00
Of five-twenties of 1865	9,600 00
Of ten-forties of 1864	128,550 00
Of consols of 1865	40,800 00
Of consols of 1867	235,700 00
Of consols of 1868	154,650 00
Of Oregon war debt	5,450 00
Of refunding certificates	109,150 00
Of old demand, compound interest, and other notes	18,300 00
Total	$134,178,756 96

The revenue for the present fiscal year, actual and estimated, is as follows:

SOURCE.	For the quarter ended Sept. 30, 1883.	For the remaining three quarters of the year.
	Actual.	Estimated.
From customs	$57,402,975 67	$137,597,024 33
From internal revenue	29,662,078 60	90,337,921 40
From sale of public lands	2,932,635 17	5,067,364 83
From tax on circulation and deposits of national banks	1,557,800 88	1,542,199 12
From repayment of interest and sinking fund, Pacific Railway Companies	521,059 51	1,478,940 49
From customs fees, fines, penalties, etc	298,696 78	901,303 22
From fees—consular, letters patent, and lands	863,209 80	2,436,790 20
From proceeds of sales of Government property	112,562 23	167,437 77
From profits on coinage, etc	950,229 46	3,149,770 54
From deposits for surveying public lands	172,461 31	327,538 69
From revenues of the District of Columbia	256,017 99	1,643,982 01
From miscellaneous sources	1,237,189 63	2,382,810 37
Total receipts	$95,966,917 03	$247,033,082 97

The actual and estimated expenses for the same period are:

OBJECT.	For the quarter ended Sept. 30, 1883.	For the remaining three quarters of the year.
	Actual.	Estimated.
For civil and miscellaneous expenses, including public buildings, lighthouses, and collecting the revenue......	$15,885,799 42	$51,114,200 58
For Indians..................	2,623,390 54	4.126.609 46
For pensions...................	16,285,261 98	53,714,738 02
For military establishment, including fortifications, river and harbor improvements, and arsenals..............	13,512,204 33	26,487,795 67
For naval establishment, including vessels and machinery, and improvements at navy-yards................	4,199,299 69	12,300,700 31
For expenditures on account of the District of Columbia.	1,138,836 41	2,611,163 59
For interest on the public debt......................	14,797,297 96	39,702,702 04
Total ordinary expenditures.................	$67,942,090 33	$190,057,909 67

Total receipts, actual and estimated.........	$343,000,000 00
Total expenditures, actual and estimated....	258,000,000 00
	$85,000,000 00
Estimated amount due the sinking fund.	45,816,741 07
Leaving a balance of...	$39,183,258 93

If the revenue for the fiscal year which will end on June 30, 1885, be estimated upon the basis of existing laws, the Secretary is of the opinion that for that year the receipts will exceed by $60,000,000 the ordinary expenditures, including the amount devoted to the sinking fund.

Hitherto the surplus as rapidly as it has accumulated has been devoted to the reduction of the national debt.

As a result the only bonds now outstanding which are redeemable at the pleasure of the Government are the 3 per cents, amounting to about $305,000,000.

The 4½ per cents, amounting to $250,000,000, and the $737,000,000 4 per cents are not payable until 1891 and 1907, respectively.

If the surplus shall hereafter be as large as the Treasury estimates now indicate, the 3 per cent. bonds may all be redeemed at least four years before any of the 4½ per cents can be called in. The latter at the same rate of accumulation of surplus can be paid at maturity, and the moneys requisite for the redemption of the 4 per cents will be in the Treasury many years before those obligations become payable.

There are cogent reasons, however, why the national indebtedness should not be thus rapidly extinguished. Chief among them is the fact that only by excessive taxation is such rapidity attainable.

In a communication to the Congress at its last session I recommended that all excise taxes be abolished except those relating to distilled spirits, and that substantial reductions be also made in the revenues from customs. A statute has since been enacted by which the annual tax and tariff receipts of the Government have been cut down to the extent of at least fifty or sixty millions of dollars.

While I have no doubt that still further reductions may be wisely made, I do not advise the adoption at this session of any measures for large diminution of the national revenues. The results of the legislation of the last session of the Congress have not as yet become sufficiently apparent to justify any radical revision or sweeping modifications of existing law.

In the interval which must elapse before the effects of the act of March 3, 1883, can be definitely ascertained, a portion at least of the surplus revenues may be wisely applied to the long-neglected duty of rehabilitating our navy and providing coast defenses for the protection of our harbors. This is a matter to which I shall again advert.

Immediately associated with the financial subject just discussed is the important question what legislation is needed regarding the national currency.

The aggregate amount of bonds now on deposit in the Treasury to support the national-bank circulation is about $350,000,000. Nearly $200,000,000 of this amount consists of 3 per cents, which, as already stated, are payable at the pleasure of the Government, and are likely to be called in within less than four years, unless meantime the surplus revenues shall be diminished.

The probable effect of such an extensive retirement of the securities which are the basis of the national-bank circulation would be such a contraction of the volume of the currency as to produce grave commercial embarrassments.

How can this danger be obviated? The most effectual plan, and one whose adoption at the earliest practicable opportunity I shall heartily approve, has already been indicated.

If the revenues of the next four years shall be kept substantially commensurate with the expenses, the volume of circulation will not be likely to suffer any material disturbance.

But if, on the other hand, there shall be great delay in reducing taxation, it will become necessary either to substitute some other form of currency in place of the national-bank notes, or to make important changes in the laws by which their circulation is now controlled.

In my judgment the latter course is far preferable. I commend to your attention the very interesting and thoughtful suggestions upon this subject which appear in the Secretary's report.

The objections which he urges against the acceptance of any other securities than the obligations of the Government itself as a foundation for national-bank circulation seem to me insuperable.

For averting the threatened contraction two courses have been suggested, either of which is probably feasible. One is the issuance of new bonds, having many years to run, bearing a low rate of interest, and exchangeable upon specified terms for those now outstanding. The other course, which commends itself to my own judgment as the better, is the enactment of a law repealing the tax on circulation and permitting the banks to issue notes for an amount equal to 90 per cent. of the market value instead of as now the face value of their deposited bonds. I agree with the Secretary in the belief that the adoption of this plan would afford the necessary relief.

The trade-dollar was coined for the purpose of traffic in countries where silver passed at its value as ascertained by its weight and fineness. It never had a legal-tender quality. Large numbers of these coins entered, however, into the volume of our currency. By common consent their circulation in domestic trade has now ceased, and they have thus become a disturbing element. They should not be longer permitted to embarrass our currency system. I recommend that provision be made for their reception by the Treasury and the mints, as bullion at a small percentage above the current market price of silver of like fineness.

The Secretary of the Treasury advises a consolidation of certain of the customs districts of the country, and suggests that the President be vested with such power in relation thereto as is now given him in respect to collectors of internal revenue by section 3141 of the Revised Statutes. The statistics upon this subject which are contained in his report furnish of themselves a strong argument in defense of his views.

At the adjournment of Congress the number of internal-revenue collection districts was one hundred and twenty-six. By Executive order, dated June 25, 1883, I directed that certain of these districts be consolidated. The result has been a reduction of one third their number, which at present is but eighty-three.

From the report of the Secretary of War it will be seen that in only a single instance has there been any disturbance of the quiet condition of our Indian tribes. A raid from Mexico into Arizona was made in March last by a small party of Indians, which was pursued by General Crook into the mountain-regions from which it had come. It is confidently hoped that serious outbreaks will not again occur, and that the Indian tribes which have for so many years disturbed the West will hereafter remain in peaceable submission.

I again call your attention to the present condition of our extended sea-coast, upon which are so many large cities whose wealth and importance to the country would in time of war invite attack from modern armored ships, against which our existing defensive works could give no adequate protection. Those works were built before the introduction of modern heavy rifled guns into maritime warfare, and if they are not put in an efficient condition we may easily be subjected to humiliation by a hostile power greatly inferior to ourselves. As germane to this subject, I call your attention to the importance of perfecting our submarine-torpedo defenses. The board authorized by the last Congress to report upon the method which should be adopted for the manufacture of heavy ordnance adapted to modern warfare has visited the principal iron and steel works in this country and in Europe. It is hoped that its report will soon be made, and that Congress will thereupon be disposed to provide suitable facilities and plant for the manufacture of such guns as are now imperatively needed.

On several occasions during the past year officers of the army have, at the request of the State authorities, visited their militia encampments for inspection of the troops. From the reports of these officers I am induced to believe that the encouragement of the State militia organizations by the national Government would be followed by very gratifying results, and would afford it in sudden emergencies the aid of a large body of volunteers educated in the performance of military duties.

The Secretary of the Navy reports that, under the authority of the acts of August 5, 1882, and March 3, 1883, the work of strengthening our navy by the construction of modern vessels has been auspiciously begun. Three cruisers are in process of construction—the Chicago, of 4,500 tons displacement, and the Boston and Atlanta, each of 2,500 tons. They are to be built of steel, with the tensile strength and ductility prescribed by law, and, in the combination of speed, endurance, and armament, are expected to compare favorably with the best unarmored war-vessels of other nations. A fourth vessel, the Dolphin, is to be constructed of similar material, and is intended to serve as a fleet dispatch-boat.

The double-turreted monitors, Puritan, Amphitrite, and Terror, have been launched on the Delaware river, and a contract has been made for the supply of their machinery. A similar monitor, the Monadnock, has been launched in California.

The naval advisory board and the Secretary recommend the completion of the monitors, the construction of four gunboats, and also of three additional steel vessels like the Chicago, Boston, and Dolphin.

As an important measure of national defense, the Secretary urges also the immediate creation of an interior coast-line of water-ways across the peninsula of Florida, along the coast from Florida to Hampton Roads, between the Chesapeake Bay and the Delaware river, and through Cape Cod.

I feel bound to impress upon the attention of Congress the necessity of continued progress in the reconstruction of the navy. The condition of the public Treasury, as I have already intimated, makes the present an auspicious time for putting this branch of the service in a state of efficiency.

It is no part of our policy to create and maintain a navy able to cope with that of the other great powers of the world.

We have no wish for foreign conquest, and the peace which we have long enjoyed is in no seeming danger of interruption.

But that our naval strength should be made adequate for the defense of our harbors, the protection of our commercial interests, and the maintenance of our national honor, is a proposition from which no patriotic citizen can withhold his assent.

The report of the Postmaster-General contains a gratifying exhibit of the condition and prospects of the interesting branch of the public service committed to his care.

It appears that on June 30, 1883, the whole number of post-offices was 47,863, of which 1,632 were established during the previous fiscal year. The number of offices operating under the system of free delivery was 154.

At these latter offices the postage on local matter amounted to $4,195,230.52—a sum exceeding by $1,021,894.01 the entire cost of the carrier service of the country.

The rate of postage on drop-letters passing through these offices is now fixed by law at two cents per half-ounce or fraction thereof. In offices where the carrier system has not been established the rate is only half as large.

It will be remembered that in 1863, when free delivery was first established by law, the uniform single-rate postage upon local letters was one cent; and so it remained until 1872, when in those cities where carrier service was established it was increased in order to defray the expense of such service.

It seems to me that the old rate may now with propriety be restored, and that, too, even at the risk of diminishing, for a time at least, the receipts from postage upon local letters.

I can see no reason why that particular class of mail matter should be held accountable for the entire cost of not only its own collection and delivery, but the collection and delivery of all other classes; and I am confident, after full consideration of the subject, that the reduction of rate would be followed by such a growing accession of business as to occasion but slight and temporary loss to the revenues of the Post-Office. The Postmaster-General devotes much of his report to the consideration, in its various aspects, of the relations of the Government to the telegraph. Such reflection as I have been able to give to this subject since my last annual message has not led me to change the views which I there expressed in dissenting from the recommendation of the then Postmaster-General that the Government assume the same control over the telegraph which it has always exercised over the mail.

Admitting that its authority in the premises is as ample as has ever been claimed for it, it would not, in my judgment, be a wise use of that authority to purchase or assume the control of existing telegraph lines, or to construct others with a view of entering into general competition with private enterprise.

The objections which may be justly urged against either of those projects, and indeed against any system which would require an enormous increase in the civil-service list, do not, however, apply to some of the plans which have lately provoked public comment and discussion. It has been claimed, for example, that Congress might wisely authorize the Postmaster-General to contract with some private persons or corporation for the transmission of messages, or of a certain class of messages, at specified rates and under Government supervision. Various such schemes, of the same general nature but widely differing in their special characteristics, have been suggested in the public prints, and the arguments by which they have been supported and opposed have doubtless attracted your attention.

It is likely that the whole subject will be considered by you at the present session.

In the nature of things it involves so many questions of detail that your deliberations would probably be aided slightly, if at all, by any particular suggestions which I might now submit.

I avow my belief, however, that the Government should be authorized by law to exercise some sort of supervision over interstate telegraphic communication, and I express the hope that for attaining that end some measure may be devised which will receive your approbation.

The Attorney-General criticises in his report the provisions of existing laws fixing the fees of jurors and witnesses in the Federal courts. These provisions are chiefly contained in the act of February 26, 1853, though some of them were introduced into that act from statutes which had been passed many years previous. It is manifest that such compensation as might when these laws were enacted have been just and reasonable would, in many instances, be justly regarded at the present day as inadequate. I concur with the Attorney-General in the belief that the statutes should be revised by which these fees are regulated.

So, too, should the laws which regulate the compensation of district attorneys and marshals. They should be paid wholly by salaries instead of in part by fees, as is now the case.

The change would prove to be a measure of economy, and would discourage the institution of needless and oppressive legal proceedings, which, it is to be feared, have in some instances been conducted for the mere sake of personal gain.

Much interesting and varied information is contained in the report of the Secretary of the Interior.

I particularly call your attention to his presentation of certain phases of the Indian question, to his recommendations for the repeal of the pre-emption and timber-culture acts, and for more stringent legislation to prevent frauds under the pension laws. The statutes which prescribe the definitions and punishments of crimes relating to pensions could, doubtless, be made more effective by certain amendments and additions which are pointed out in the Secretary's report.

I have previously referred to the alarming state of illiteracy in certain portions of the country, and again submit for the consideration of Congress whether some Federal aid should not be extended to public primary education wherever adequate provision therefor has not already been made.

The Utah Commission has submitted to the Secretary of the Interior its second annual report. As a result of its labors in supervising the recent election in that Territory, pursuant to the act of March 22, 1882, it appears that persons by that act disqualified to the number of about 12,000 were excluded from the polls. This fact, however, affords little cause for congratulation, and I fear that it is far from indicating any real and substantial progress toward the extirpation of polygamy. All the members-elect of the Legislature are Mormons. There is grave reason to believe that they are in sympathy with the practices that this Government is seeking to suppress, and that its efforts in that regard will be more likely to encounter their opposition than to receive their encouragement and support. Even if this view should happily be erroneous, the law under which the commissioners have been acting should be made more effective by the incorporation of some such stringent amendments as they recommend, and as were included in bill No. 2,238 on the calendar of the Senate at its last session.

I am convinced, however, that polygamy has become so strongly intrenched in the Territory of Utah that it is profitless to attack it with any but the stoutest weapons which constitutional legislation can fashion. I favor, therefore, the repeal of the act upon which the existing government depends, the assumption by the national Legislature of the entire political control of the Territory, and the establishment of a commission with such powers and duties as shall be delegated to it by law.

The Department of Agriculture is accomplishing much in the direction of the agricultural development of the country, and the report of the Commissioner, giving the results of his investigations and experiments, will be found interesting and valuable.

At his instance, a convention of those interested in the cattle industry of the country was lately held at Chicago. The prevalence of pleuro-pneumonia and other contagious diseases of animals was one of the chief topics of discussion. A committee of the convention will invite your co-operation in investigating the causes of these diseases, and providing methods for their prevention and cure.

I trust that Congress will not fail at its present session to put Alaska under the protection of law. Its people have repeatedly remonstrated against our neglect to afford them the maintenance and protection expressly guaranteed by the terms of the treaty whereby that Territory was ceded to the United States. For sixteen years they have pleaded in vain for that which they should have received without the asking.

They have no law for the collection of debts, the support of education, the conveyance of property, the administration of estates, or the enforcement of contracts; none indeed for the punishment of criminals, except such as offend against certain customs, commerce, and navigation acts.

The resources of Alaska, especially in fur, mines, and lumber, are considerable in extent, and capable of large development, while its geographical situation is one of political and commercial importance.

The promptings of interest, therefore, as well as considerations of honor and good faith, demand the immediate establishment of civil government in that Territory.

Complaints have lately been numerous and urgent that certain corporations, controlling in whole or in part the facilities for the interstate carriage of persons and merchandise over the great railroads of the country, have resorted in their dealings with the public to divers measures unjust and oppressive in their character.

In some instances the State governments have attacked and suppressed these evils, but in others they have been unable to afford adequate relief because of the jurisdictional limitations which are imposed upon them by the Federal Constitution.

The question how far the national Government may lawfully interfere in the premises, and what, if any, supervision or control it ought to exercise, is one which merits your careful consideration.

While we can not fail to recognize the importance of the vast railway systems of the country, and their great and beneficent influences upon the development of our material wealth, we should, on the other hand, remember that no individual, and no corporation, ought to be invested with absolute power over the interests of any other citizen, or class of citizens. The right of these railway corporations to a fair and profitable return upon their investments, and to reasonable freedom in their regulations, must be recognized; but it seems only just that, so far as its constitutional authority will permit, Congress should protect the people at large in their interstate traffic against acts of injustice which the State governments are powerless to prevent.

In my last annual message, I called attention to the necessity of protecting, by suitable legislation, the forests situated upon the public domain. In many portions of the West the pursuit of general agriculture is only made practicable by resort to irrigation, while successful irrigation would itself be impossible without the aid afforded by forests, in contributing to the regularity and constancy of the supply of water.

During the past year severe suffering and great loss of property have been occasioned by profuse floods, followed by periods of unusually low water, in many of the great rivers of the country.

These irregularities were in great measure caused by the removal from about the sources of the streams in question of the timber by which the water-supply had been nourished and protected.

The preservation of such portions of the forests on the national domain as essentially contribute to the equable flow of important water-courses is of the highest consequence.

Important tributaries of the Missouri, the Columbia, and the Saskatchewan, rise in the mountain-region of Montana, near the northern boundary of the United States, between the Blackfeet and Flathead Indian reservations. This region is unsuitable for settlement, but upon the rivers which flow from it depends the future agricultural development of a vast tract of country. The attention of Congress is called to the necessity of withdrawing from public sale this part of the public domain, and establishing there a forest reserve.

The industrial exhibitions which have been held in the United States during the present year attracted attention in many foreign countries, where the announcement of those enterprises had been made public through the foreign agencies of this Government. The Industrial Exhibition at Boston, and the Southern Exposition at Louisville, were largely attended by the exhibitors of foreign countries, notwithstanding the absence of any professed national character in those undertakings.

The Centennial Exposition to be held next year at New Orleans, in commemoration of the centenary of the first shipment of cotton from a port of the United States, bids fair to meet with like gratifying success. Under the act of Congress of the 10th of February, 1883, declaring that exposition to be national and international in its character, all foreign governments with which the United States maintain relations have been invited to participate.

The promoters of this important undertaking have already received assurances of the lively interest which it has excited abroad.

The report of the Commissioners of the District of Columbia is herewith transmitted. I ask for it your careful attention, especially for those portions which relate to assessments, arrears of taxes, and increase of water-supply.

The commissioners who were appointed under the act of January 16, 1883, entitled "An act to regulate and improve the civil service of the United States," entered promptly upon the discharge of their duties.

A series of rules, framed in accordance with the spirit of the statute, was approved and promulgated by the President.

In some particulars wherein they seemed defective those rules were subsequently amended. It will be perceived that they discountenance any political or religious tests for admission to those offices of the public service to which the statute relates.

The act is limited in its original application to the classified clerkships in the several Executive Departments at Washington (numbering about 5,600), and to similar positions in customs districts and post-offices where as many as fifty persons are employed.

A classification of these positions analogous to that existing in the Washington offices was duly made before the law went into effect.

Eleven customs districts and twenty-three post-offices were thus brought under the immediate operation of the statute.

The annual report of the civil-service commission, which will soon be submitted to Congress, will doubtless afford the means of a more definite judgment than I am now prepared to express as to the merits of the new system. I am persuaded that its effects have thus far proved beneficial. Its practical methods appear to be adequate for the ends proposed, and there has been no serious difficulty in carrying them into effect. Since the 16th of July last no person, so far as I am aware, has been appointed to the public service in the classified portions thereof at any of the Departments, or at any of the post-offices and customs districts above named, except those certified by the commission to be the most competent on the basis of the examinations held in conformity to the rules.

At the time when the present Executive entered upon his office, his death, removal, resignation, or inability to discharge his duties, would have left the Government without a constitutional head.

It is possible, of course, that a similar contingency may again arise, unless the wisdom of Congress shall provide against its recurrence.

The Senate at its last session, after full consideration, passed an act relating to this subject, which will now, I trust, commend itself to the approval of both Houses of Congress.

The clause of the Constitution upon which must depend any law regulating the presidential succession, presents also for solution other questions of paramount importance.

These questions relate to the proper interpretation of the phrase "inability to discharge the powers and duties of said office," our organic law providing that, when the President shall suffer from such inability, the presidential office shall devolve upon the Vice-President, who must himself, under like circumstances, give place to such officer as Congress may by law appoint to act as President.

I need not here set forth the numerous and interesting inquiries which are suggested by these words of the Constitution. They were fully stated in my first communication to Congress, and have since been the subject of frequent deliberations in that body.

It is greatly to be hoped that these momentous questions will find speedy solution, lest emergencies may arise when longer delay will be impossible, and any determination, albeit the wisest, may furnish cause for anxiety and alarm.

For the reasons fully stated in my last annual message, I repeat my recommendation that Congress propose an amendment to that provision of the Constitution which prescribes the formalities for the enactment of laws, whereby, in respect to bills for the appropriation of public moneys, the Executive may be enabled, while giving his approval to particular items, to interpose his veto as to such others as do not commend themselves to his judgment.

The fourteenth amendment of the Constitution confers the rights of citizenship upon all persons born or naturalized in the United States and subject to the jurisdiction thereof. It was the special purpose of this amendment to insure to members of the colored race the full enjoyment of civil and political rights.

Certain statutory provisions intended to secure the enforcement of those rights have been recently declared unconstitutional by the Supreme Court.

Any legislation whereby Congress may lawfully supplement the guarantees which the Constitution affords for the equal enjoyment by all the citizens of the United States of every right, privilege, and immunity of citizenship will receive my unhesitating approval. CHESTER A. ARTHUR.

WASHINGTON, *December* 4, 1883.

Bureau of Animal Industry.—Feb. 5, 1884, a bill to establish a bureau of animal industry, to prevent the exportation of diseased cattle, and to provide means for the suppression and extirpation of pleuro-pneumonia and other contagious diseases among domestic animals, came up for discussion in the House, and was the subject of long debate there, and subsequently in the Senate. The measure, as reported from the Committee on Agriculture, was as follows:

Be it enacted, etc., That the Commissioner of Agriculture shall organize in his department a bureau of animal industry, and shall appoint a chief thereof, who shall be a competent veterinary surgeon, and whose duty it shall be to investigate and report upon the number, value, and condition of the domestic animals of the United States, their protection and use, and also inquire into and report the causes of contagious and communicable diseases among them, and the means for the prevention and cure of the same, and to collect such information on these subjects as shall be valuable to the agricultural and commercial interests of the country; and the Commissioner of Agriculture is hereby authorized to employ a force sufficient for this purpose. The salary of the chief of said bureau shall be $3,000 per annum; and the Commissioner shall appoint a clerk for said bureau, with a salary of $1,500 per annum.

Section 2. That the Commissioner of Agriculture is authorized to appoint two competent agents, who shall be practical stock-raisers or experienced business men, familiar with questions pertaining to commercial transactions in live-stock, whose duty it shall be, under the instructions of the Commissioner of Agriculture, to examine and report upon the best methods of treating, transporting, and caring for animals, and the means to be adopted for the suppression and extirpation of contagious pleuro-pneumonia, and to provide against the spread of other contagious diseases. The compensation of said agents shall be at the rate of $10 per diem, with all necessary expenses, while engaged in the actual performance of their duties under this act.

Sec. 3. That it shall be the duty of the Commissioner of Agriculture to prepare such rules and regulations as he may deem necessary for the speedy and effectual suppression and extirpation of said diseases, and to certify such rules and regulations to the executive authority of each State and Territory, and invite said authorities to co-operate in the execution and enforcement of this act. Whenever the plans and methods of the Commissioner of Agriculture shall be accepted by any State or Territory in which pleuro-pneumonia or other infectious or contagious disease is declared to exist, and whenever the Governor of a State or other properly constituted authorities signify their readiness to co-operate for the extinction of any contagious or infectious disease in conformity with the provisions of this act, the Commissioner of Agriculture is hereby authorized to expend so much of the money appropriated by this act as may be necessary in such investigations, in paying for the animals it is deemed necessary to slaughter, and in such disinfection and other means as may be necessary to extirpate the disease: *Provided*, That the authorities of said State or Territory shall assume and pay one half of the expense of the valuation of the animals it is deemed necessary to slaughter, and one half the cost of disinfection and necessary police regulations in the quarantine and care of infected herds of cattle.

Sec. 4. That whenever a State or Territory in any section of which a contagious or infectious disease exists which the Commissioner of Agriculture has declared to be dangerous to the animal industries of the nation, fails to make provisions for its extirpation, or to co-operate with the plans of the Commissioner of Agriculture for the extirpation of such disease, the President of the United States, on the presentation of the facts by the Commissioner of Agriculture, shall be authorized to declare in quarantine the said State or Territory, or such part of said State or Territory as he may deem dangerous to the animal industries of the country, and to regulate or prohibit the transportation of cattle out of said State, Territory, or district

Sec. 5. That in order to promote the exportation of live-stock from the United States the Commissioner of Agriculture shall make special investigation as to the existence of pleuro-pneumonia, or any contagious or communicable disease, along the dividing lines between the United States and foreign countries, and along the lines of transportation from all parts of the United States to ports from which live-stock are exported, and make report of the results of such investigation to the Secretary of the Treasury, who shall from time to time establish such regulations concerning the exportation and transportation of live-stock as the results of said investigations may require.

Sec. 6. That to prevent the exportation from any port of the United States to any port in a foreign country of live-stock affected with any infectious or contagious disease, and especially pleuro-pneumonia, the Secretary of the Treasury be and he is hereby authorized to take such steps and adopt such measures, not inconsistent with the provisions of this act, as he may deem necessary.

Sec. 7. That no railroad company within the United States whose road forms any part of a line of road from one State or Territory to another, or from a State into the District of Columbia, or the owners or masters of any steam or sailing or other vessel or boat, shall receive for transportation or transport from one State or Territory to another, or from any State into the District of Columbia, any live-stock affected with any contagious or infectious disease, and especially the disease known as pleuro-pneumonia; nor shall any person, company, or corporation deliver for such transportation to any railroad company, or master or owner of any boat or vessel, any live-stock, knowing them to be affected with any contagious or infectious disease; nor shall any person, company, or corporation drive on foot or transport in private conveyance from one State or Territory to another, or from any State into the District of Columbia, any live-stock, knowing them to be affected with any contagious or infectious disease, and especially the disease known as pleuro-pneumonia.

Sec. 8. That it shall be the duty of the Commissioner of Agriculture to notify, in writing, the proper officials or agents of any railroad, steamboat, or other transportation company doing business in or through any infected locality, and by publication in such newspapers as he may select, of the existence of said contagion; and any person or persons operating any such railroad, or master or owner of any boat or vessel, or owner or custodian of, or person having control over, such cattle or other live-stock within such infected district who shall knowingly violate the provisions of section 7 of this act shall be guilty of a misdemeanor, and upon conviction shall be punished by a fine of not less than $100 nor more than $5,000, or by imprisonment for not more than one year, or by both such fine and imprisonment.

Sec. 9. That whenever any infectious or contagious disease affecting domestic animals, and especially the disease known as pleuro-pneumonia, shall be brought into or shall break out in the District of Columbia, it shall be the duty of the Commissioners of said District to take measures to suppress the same promptly and to prevent the same from spreading; and for this purpose the said Commissioners are hereby empowered to order and require that any premises, farm, or farms where such disease exists, or has existed, be put in quarantine; to order all or any animals coming into the District to be detained at any place or places for the purpose of inspection and examination; to prescribe regulations for and to require the destruction of animals affected with infectious or contagious disease, and for the proper disposition of their hides and carcasses; to prescribe regulations for disinfection, and such other regulations as they may deem necessary to prevent infection or contagion being communicated, and shall report to the Commissioner of Agriculture whatever they may do in pursuance of the provisions of this section.

Sec. 10. That it shall be the duty of the several United States district attorneys to prosecute all violations of this act which shall be brought to their notice or knowledge by any person making the complaint; and the same shall be heard before any district or circuit court of the United States or Territorial court holden within the district in which the violation of this act has been committed, or the person or corporation resides or carries on or has his or its place of business.

Sec. 11. That the sum of $250,000, to be immediately available, or so much thereof as may be necessary, is hereby appropriated, out of any moneys in the Treasury not otherwise appropriated, to carry into effect the provisions of this act.

SEC. 12. That the Commissioner of Agriculture shall report annually to Congress, at the commencement of each session, a list of the names of all persons employed, an itemized statement of all expenditures under this act, and full particulars of the means adopted and carried into effect for the suppression of contagious diseases among domestic animals.

The advocates of this measure assumed the existence of infectious diseases among cattle in certain parts of the country, and urged the necessity of immediate action to prevent their spread, and extirpate them from the infected districts, a great work which it was contended the Federal Government alone could adequately perform. Mr. Hatch, of Missouri, who had charge of the bill in the House, stated the case as follows:

"This bill in its entirety assumes that the disease known as pleuro-pneumonia not only exists, but exists to an alarming extent east of the Alleghany Mountains, confined, as the report shows, at this time to parts of five States. That it is contagious and infectious there can be no doubt at this day. That question has been too well settled to admit even of discussion. It has been determined by the experience in European countries and by the experience of this country that it is a virulent and violent disease, and that when it gets a foothold among the grazing herds in any section it requires years and millions of money to control it.

"Holland and England and Australia have spent millions of dollars in their efforts to control this disease. In the judgment of your committee, the first step necessary in our country is to prevent the transportation of cattle affected with pleuro-pneumonia from one district or locality to another. That can be done only by invoking the Federal power.

"In this bill we provide that no railroad company, steamboat corporation or company, or private person shall transport from one State to another cattle known to be affected with this disease. And, to bring the question of knowledge and of notice directly to the transportation company, we provide that a written notice shall be served by the Commissioner of Agriculture upon all such transportation companies within the infected district; so that under this bill, before any transportation company can be held liable, the disease must be located by the Department of Agriculture, and notice served on the transportation companies within the infected district.

"When the bill was under consideration before in the House some objection was made to this power. If the provision of the bill in this regard can be strengthened or improved or in any way made better, I will be very glad to receive a suggestion from any member of an amendment to that effect. But unless you can prevent the spread of this disease from the localities where it exists, any bill that you can pass upon this subject will not be worth the paper upon which it is printed. The experience not only of this country but of all European countries proves conclusively that you must draw a cordon of fire around this disease before you can ever extirpate it; you must hem it in by quarantine and police regulations; you must prevent the transportation of cattle affected by this disease from one farm to another, which we admit can be done in our system of government only by the State authorities. The transportation of such diseased cattle from one State to another is within the power of the Federal Government alone.

"But the mere preventing the transportation of cattle affected by this disease will not extirpate it; it will not stamp it out. Other means are necessary for this purpose. This bill provides that after the inspection by the Federal authorities, after the location of the disease, after the notification to the State authorities, it shall be the duty of the Federal Government, in co-operation with the State authorities, to use all the means within its power to eradicate the disease, by quarantine, by local police regulations, and by the destruction of such private property as may be necessary for that purpose. That means the destruction of the animals that may be diseased, and of such stables or barns as it may be thought expedient to destroy.

"In the execution of a similar law in the State of Massachusetts there have been instances when it was deemed proper to destroy a barn. After the barn had been under quarantine and police regulations for more than a year, it was decided by the highest veterinary surgeons of that day they could not rid the barn of the disease, and that the only way to extirpate the disease was to destroy the barn by fire. So virulent is the disease at times that all the means of disinfection known to science will not destroy it.

"The most difficult point that has been submitted to the Committee on Agriculture to decide in connection with this bill has been the means by which co-operation of the State could be secured in the enforcement of this law. If, as some gentlemen perhaps will contend during this discussion, and as delegations which have appeared before us have urged, the Federal Government alone should take this matter in hand, then you will prevent all efforts on the part of the State authorities to control this disease.

"If the Federal Government is to go into the State of New Jersey, which State has already a law upon this subject, and makes an annual appropriation to carry it into effect, or into the State of West Virginia, or into Maryland, and say to either one of those States that we propose to take this matter in hand, you will paralyze all State efforts; the State will make no further appropriations; it will not appoint a force of officers to carry out any law, because by our legislation we will repeal all those State laws.

"We have heard delegations from all the cattle interests of the country and representatives from every State where this disease exists. The Committee on Agriculture believe that the proposition submitted by them to the House is the best that can be devised for this purpose. That is, that the Commissioner of Agriculture, with the force placed at his command, shall, by proper investigation and inspection, locate this disease, notify the State authorities of the fact that it exists, and then invite the co-operation of the State. And from that point until the disease is exterminated it is proposed that the State and the Federal Governments shall each bear one half of the expense of the destruction of private property necessary for this purpose.

"By that means we secure not only the earnest but the interested co-operation of the State in the execution of this law. We secure what is better than that, the co-operation of the State authorities for the execution of the law within the limits of the State, because, when we reach that point, the power of the Federal Government ceases without the authority of the State. It is true that the Federal authority can go into a State and purchase in the market all the cattle in the State, and destroy them after they are purchased. But the Federal Government can not go into the State of Maryland or New Jersey, for instance, and condemn private property; nor can it, under the decision of the Supreme Court to which I have referred, even put that property in quarantine or place it under police regulations. That power belongs exclusively to the State.

"I am satisfied, from the information that we have upon this subject, that there is not a single State where the disease exists to-day that will not heartily and cordially co-operate with the Federal Government in the extinguishment of this disease, paying one half of the expense of so doing, because the States are now making efforts to do it alone. Certainly, they will not object to the Federal Government paying one half of the expense."

The opponents of the measure objected to it on the ground that it was unconstitutional; that it created new officials, in whose hands enormous power was vested with great possibilities of evil; that there was no real necessity for the passage of the bill. The case of the strict constructionists was presented by Mr. Eaton, of Connecticut, who said:

"Mr. Chairman, this bill has a taking title. We all of us say we would be very glad and very happy to do anything that we can constitutionally to regulate this matter. Sir, I find myself with regard to this cattle question in the same difficulty that I found myself years ago with regard to a bill affecting the health of human beings. I did not believe it was in the power of the Congress of the United States to determine what should be the police regulations with regard to the health of men, women, and children in the great State of New York. I did not believe that anybody to be appointed by Congress would have half the knowledge upon a matter of that kind that would be possessed by the people in the State of New York, who for a hundred or two hundred years had taken care of the health of that community. So I say, sir, that the title of this bill, before it is passed, ought to be changed. It should be declared to be a bill to abrogate and annul the Constitution of the United States, and deprive the States of the rights which belong to them.

"Why, sir, for one moment, and it can be for but a moment, look at the power this bill undertakes to give the President of the United States. Power to establish what some one calls a horse-doctor, and very well calls, too—to do what? Why, to declare the State of Connecticut in quarantine, and to send this horse-doctor, or somebody else, from here to Connecticut, to tell our people what to do in regard to their safety and the health of their domestic animals.

"Why, sir, this whole bill, although framed with the best intentions, is like many other things which are full of good intentions. It is a bad bill, a bill which ought to receive the attention of this House, a bill which strikes directly at the root of the rights of the State, a bill which undertakes to make the President of the United States a master of the people of this great confederation of States.

"Sir, the State of Connecticut is sovereign, the State of Texas is sovereign, the State of Missouri is sovereign, in everything regarding the health of her people and the welfare and the property of her people. It is not within the power of Congress. Within the limit of the Constitution Congress can not undertake to arrogate to itself this great power.

"Mr. Chairman, I can not characterize this bill in ten minutes. But I ask gentlemen to examine it with care. This is one of the wedges which we have driven into the constitutional rights of the States. Beware of those wedges! They have been plenty in the past. Let us see to it there will be fewer of them in the future; for the safety of this great people rests on the sovereignty and the rights of the States. With those rights—I say rights, not assumed rights, but rights older than the Constitution, God-given rights—with those rights protected, cared for, and adhered to, this Government will go on until it will number hundreds of millions of people and hundreds of free and independent States. But, sir, it can not be done, and will never be done, if you undertake to take from the States their rights and give those rights to the confederated Government."

After a thorough discussion, the bill was amended by inserting in the first section the word "infectious" after the word "contagious," and inserting the clause, "not to exceed twenty persons at any one time" after the clause empowering the Commissioner of Agriculture "to employ force sufficient for this purpose"; by inserting elsewhere in the bill the words "infectious or communicable" after "contagious," or, where one of them was already used, supplying the other; by inserting the words "under oath" after the word "complaint" in the tenth section; and, finally, by striking out the fourth section altogether. On this amendment the yeas and nays were taken, as follows:

Yeas—J. J. Adams, Aiken, Alexander, Arnot, Bagley, Ballentine, Barbour, Barksdale, Bennett, Blanchard, Bland, Blount, Boyle, Breckinridge, Broadhead, Buchanan, Buckner, Budd, Burnes, Cabell, Caldwell, Candler, Carleton, Cassidy, Clardy, Clay, Clements, Cobb, Collins, Converse, Cosgrove, Covington, S. S. Cox, W. R. Cox, Crisp, D. B. Culberson, Curtin, Dargan, Davidson, Dibble, Dockery, Dorsheimer, Dowd, Duncan, Dunn, Eaton, Eldredge, Elliott, Ermentrout, J. H. Evins, Fiedler, Finerty, Follett, Foran, Forney, Fyan, Geddes, Gibson, Glascock, Graves, Green, Greenleaf, Halsell, Hardeman, Hemphill, Henley, Herbert, A. S. Hewitt, G. W. Hewitt, Hill, Holman, Hopkins, Houseman, Hunt, Hutchins, J. H. Jones, J. K. Jones, J. T. Jones, Jordan, King, Kleiner, Lamb, Lanham, Lewis, Lore, Lovering, Lowry, McAdoo, McMillin, Matson, J. F. Miller, Mills, Mitchell, Money, Morrison, Morse, Moulton, Muldrow, Murphy, Murray, Mutchler, Nicholls, Oates, Paige, Pierce, S. W. Peel, Pettibone, Post, Potter, Pryor, Pusey, Randall, Reagan, Reese, Rice, Robertson, W. E. Robinson, J. H. Rogers, W. F. Rogers, Rosecrans, Scales, Seney, Seymour, Shaw, Shelley, T. G. Skinner, Slocum, Snyder, Spriggs, Stevens, Stewart, Charles, Stockslager, Stone, Storm, C. A. Sumner, Talbot, J. M. Taylor, Thompson, Throckmorton, Tillman, Tucker, Tully, H. G. Turner, Oscar Turner, Vance, Van Eaton, A. J. Warner, Richard Warner, Wellborn, Weller, Wemple, Williams, W. L. Wilson, G. D. Wise, York—155.

Nays—G. E. Adams, Anderson, Bayne, Beach, Belford, Bingham, Bisbee, Boutelle, Brainerd, Breitung, J. H. Brewer, T. M. Browne, W. W. Brown, Brumm, Burleigh, Calkins, J. M. Campbell, Cannon, Chace, Cook, Cullen, Cutcheon, G. R. Davis, R. T. Davis, Dibrell, Dingley, Dunham, Ellwood, I. N. Evans, Everhart, Ferrell, Goff, Guenther, Hanback, Harmer, Hart, H. H. Hatch, W. H. Hatch, Haynes, D. B. Henderson, T. J. Henderson, Hiscock, Hitt, Holton, Houk, Howey, James, Jeffords, Johnson, B. W. Jones, Kasson, Kean, Keifer, Kelley, Lacey, Laird, Lawrence, Le Fevre, Long, Lyman, McCoid, McComas, McCormick, McKinley, Mayo, Millard, S. H. Miller, Milliken, Morey, Morgan, Morrill, Neece, Nelson, Nutting, Charles O'Neill, Parker, Payson, S. J. Peelle, Perkins, Peters, Poland, Price, Ranney, Ossian Ray, Reed, J. S. Robinson, Rockwell, Russell, Ryan, C. R. Skinner, Smith, Spooner, Springer, Steele, Stephenson, Strait, Struble, E. B. Taylor, J. D. Taylor, Thomas, Valentine, Wadsworth, Wakefield, Washburn, Weaver, Milo White, Whiting, Wilkins, James Wilson, E. B. Winans, John Winans, J. S. Wise, Wolford, Woodward, Worthington, Yaple. —116.

Not Voting—Atkinson, Barr, Belmont, Blackburn, Bowen, F. B. Brewer, Felix Campbell, Connolly, W. W. Culbertson, L. H. Davis, Deuster, Ellis, Findlay, George, Hammond, Hancock, Hardy, Hepburn, Hoblitzell, Holmes, Hooper, Horr, Hurd, Kellogg, Ketcham, Libbey, Maybury, Muller, Ochiltree, O'Hara, J. J. O'Neill, Patton, Payne, Phelps, Rankin, G. W. Ray, Riggs, Rowell, Singleton, J. W. Stewart, D. H. Sumner, Townshend, Van Alstyne, Wait, Ward, J. D. White, Willis, Wood, Young—49.

The bill then passed the House, Feb. 28, 1884, by the following vote:

Yeas—G. E. Adams, Alexander, Anderson, Bayne, Beach, Belford, Bingham, Bisbee, Bland, Boutelle, Brainerd, Breckinridge, Breitung, J. H. Brewer, T. M. Browne, W. W. Brown, Brumm, Budd, Burnes, Caldwell, Calkins, J. M. Campbell, Cannon, Carleton, Chace, Clardy, Converse, Cook, Cullen, Cutcheon, G. R. Davis, R. T. Davis, Deuster, Dibrell, Dingley, Dunham, Eldredge, Ellwood, I. N. Evans, Everhart, Ferrell, Foran, Fyan, Geddes, George, Goff, Graves, Green, Hanback, Harmer, Hart, H. H. Hatch, W. H. Hatch, Haynes, D. B. Henderson, T. J. Henderson, A. S. Hewitt, Hill, Hiscock, Hitt, Holmes, Hooper, Houk, Houseman, Howey, James, Jeffords, Johnson, B. W. Jones, Kasson, Kean, Keifer, Kelley, King, Lacey, Laird, Lawrence, Le Fevre, Libbey, Long, Lore, Lowry, Lyman, McCoid, McComas, McCormick, McKinley, Matson, Maybury, Millard, S. H. Miller, Milliken, Morey, Morgan, Morrison, Moulton, Muldrow, Murphy, Neece, Nelson, Nutting, Charles O'Neill, J. J. O'Neill, Parker, Payson, Pierce, S. J. Peelle, Perkins, Peters, Pettibone, Poland, Price, Pusey, Rankin, Ranney, Ossian Ray, Reed, Rice, J. S. Robinson, Rockwell, Russell, Ryan, Seney, C. R. Skinner, Smith, Spooner, Springer, Steele, Stephenson, Stone, Strait, Struble, C. A. Sumner, E. B. Taylor, J. D. Taylor, J. M. Taylor, Thomas, Valentine, Wadsworth, Wakefield, Ward, Washburn, Weaver, Weller, J. D. White, Milo White, Whiting, Wilkins, James Wilson, E. B. Winans, John Winans, J. S. Wise, Wood, Worthington, Yaple —155.

Nays—J. J. Adams, Aiken, Arnot, Bagley, Ballentine, Barbour, Barksdale, Belmont, Bennett, Blanchard, Blount, Boyle, Broadhead, Buchanan, Buckner, Cabell, Candler, Cassidy, Clay, Clements, Cobb, Collins, Connolly, Cosgrove, Covington, S. S. Cox, W. R. Cox, Crisp, D. B. Culberson, Curtin, Dargan, Davidson, Dibble, Dockery, Dorsheimer, Dowd, Duncan, Dunn, Eaton, Elliott, Ermentrout, J. H. Evins, Fiedler, Finerty, Follett, Forney, Gibson, Glascock, Greenleaf, Halsell, Hardeman, Hardy, Hemphill, Henley, Herbert, G. W. Hewitt, Holman, Holton, Hopkins, Hunt, Hutchins, J. H. Jones, J. K. Jones, J. T. Jones, Jordan, Kleiner, Lamb, Lanham, Lewis, Lovering, McAdoo, McMillin, J. F. Miller, Mitchell, Money, Morse, Murray, Mutchler, Nicholls, Oates, O'Hara, Paige, S. W. Peel, Post, Potter, Pryor, Randall, Reagan, Reese, W. E. Robinson, J. H. Rogers, W. F. Rogers, Rosecrans, Scales, Seymour, Shaw, Singleton, T. G. Skinner, Slocum, Snyder, Spriggs, Stevens, Charles Stewart, Stockslager, Storm, D. H. Sumner, Talbott, Thompson, Throckmorton, Tillman, Tucker, Tully, H. G. Turner, Oscar Turner, Van Alstyne, Vance, Van Eaton, A. J. Warner, Richard Warner, Wellborn, Wemple, Williams, Willis, W. L. Wilson, G. D. Wise, Wolford, York—127.

Not Voting—Atkinson, Barr, Blackburn, Bowen, F. B. Brewer, Burleigh, Felix Campbell, W. W. Culbertson, L. H. Davis, Ellis, Findlay, Guenther, Hammond, Hancock, Hepburn, Hoblitzell, Horr, Hurd, Kellogg, Ketcham, Mayo, Mills, Morrill, Muller, Ochiltree, Patton, Payne, Phelps, G. W. Ray, Riggs, Robertson, Rowell, Shelley, J. W. Stewart, Townshend, Wait, Woodward, Young—38.

March 12, 1884, the Senate Committee on Agriculture and Forestry brought forward the House bill, adopting it as a substitute for one that they had prepared on the same subject. After a discussion in which the topics varied from theories of constitutional interpretation to speculations as to the actual condition of American cattle, the bill was amended and passed the Senate, April 29, by the following vote:

Yeas—Aldrich, Call, Cameron of Wisconsin, Cockrell, Conger, Cullom, Dawes, Dolph, Edmunds, Frye, Garland, George, Hale, Harris, Hawley, Hoar, Kenna, Lamar, Lapham, Logan, McMillan, Manderson, Miller of New York, Mitchell, Morrill, Pike, Platt, Plumb, Sawyer, Van Wyck, Vest, Voorhees, Williams, Wilson—34.

Nays—Brown, Coke, Farley, Groome, Hampton, Jones of Florida, Maxey, Morgan, Ransom—9.

Absent.—Allison, Anthony, Bayard, Beck, Blair, Bowen, Butler, Camden, Cameron of Pennsylvania, Colquitt, Fair, Gibson, Gorman, Harrison, Hill, Ingalls, Jackson, Jonas, Jones of Nevada, McPherson, Mahone, Miller of California, Palmer, Pendleton, Pugh, Riddleberger, Sabin, Saulsbury, Sewell, Sherman, Slater, Vance, Walker—33.

One of the Senate amendments struck the words "number" and "value" out of the first section; another reduced the appropriation for carrying out the provisions of the measure from $250,000 to $150,000; a third provided "that the so-called splenetic or Texas fever shall not be considered a contagious, infectious, or communicable disease within the meaning of sections 4, 5, 6, and 7 of this act, as to cattle being transported by rail to market for slaughter when the same are unloaded only to be fed and watered in lots on the way thereto"; a fourth added "when absent from their usual place of business or residence as such agents" to the second section; a fifth struck out the proviso at the close of the third section, and the close of the section was made to read, "The Commissioner of Agriculture is hereby authorized to expend so much of the money appropriated by this act as may be necessary in such investigations and in such disinfection and quarantine measures as may be necessary to prevent the spread of the disease." A sixth inserted the word "dangerous" before the word contagious in the bill. The Senate amendments, after reference to a conference committee, were accepted by the House, May 24, and the measure was approved by the President, May 29.

During the progress of the bill through the Senate, Mr. Miller, of California, under instructions from the Committee on Foreign Affairs, offered the following amendment, which was laid upon the table:

Section 12. That the importation of neat-cattle, sheep, and other ruminants, and swine, which are diseased, or infected with any disease, or which shall have been exposed to such infection within sixty days next before their exportation, is hereby prohibited; and any person who shall knowingly violate the foregoing provision shall be deemed guilty of a misdemeanor, and shall, on conviction, be punished by a fine not exceeding $5,000, or by imprisonment not exceeding three years; and any vessel or vehicle used in such unlawful importation shall be forfeited to the United States.

Sec. 13. That the Secretary of the Treasury be and is hereby authorized, at the expense of the owner, to place and retain in quarantine all neat-cattle, sheep, and other ruminants, and all swine, imported into the United States, at such ports as he may designate for such purpose, and under such conditions as he may by regulation prescribe, respectively, for the several classes of animals above described; and for this purpose he may have and maintain possession of all lands, buildings, animals, tools, fixtures, and appurtenances now in use for the quarantine of neat-cattle, and hereafter purchase, construct, or rent such as may be necessary, and he may appoint veterinary surgeons, inspectors, officers, and employés by him deemed necessary to maintain such quarantine, and provide for the execution of the other provisions of this act.

Sec. 14. That the importation of all animals described in this act into any port in the United States, except such as may be approved by the Secretary of the Treasury as quarantine stations, is hereby prohibited; and the collector of the port where such animals are landed may cause to be slaughtered such of the animals named in this act as may be, under regulations prescribed by the Secretary of the Treasury, adjudged to be infected with any contagious disease, or to have been exposed to infection so as to be dangerous to other animals; and that the value of animals so slaughtered as being so exposed to infection but not infected, may be ascertained by the agreement of the collector of such port and owners thereof, if practicable; otherwise, by the appraisal by two persons familiar with the character and value of such property, to be appointed by such collector, whose decision, if they agree, shall be final; otherwise such collector shall decide between them, and his decision shall be final; and the amount of the value thus ascertained shall be paid to the owner thereof out of money in the Treasury appropriated for the collection of customs; but no payment shall be made for any animal imported in violation of the provisions of this act. If any animals subject to quarantine according to the provisions of this act are brought into any port of the United States where no quarantine station is established, the collector of such port shall require the same to be conveyed by the vessel on which they are imported or are found to the nearest quarantine station at the expense of the owner.

Sec. 15. That whenever, in the opinion of the President, it shall be necessary for the protection of animals in the United States against infectious or contagious diseases, he may, by proclamation, suspend the importation of all or any class of animals for a limited time, and may change, modify, revoke, or renew such proclamation, as the public good may require; and during the time of such suspension the importation of any such animals shall be unlawful.

Sec. 16. That each collector of customs where any of such animals are landed shall cause careful inspection to be made by a suitable officer of all imported animals described in this act, to ascertain whether such animals are infected with contagious diseases or have been exposed to infection so as to be dangerous to other animals, which shall then either be placed in quarantine or dealt with according to the regulations of the Secretary of the Treasury; and all food, litter, manure, clothing, utensils, and other appliances that have been so related to such animals on board ship as to be judged liable to convey infection, shall be dealt with according to the regulations of the Secretary of the Treasury; and the collector of any port may cause inspection to be made of all animals described in this act intended for exportation, and provide for the disinfection of all vessels engaged in the transportation thereof, and of all barges or other vessels used in the conveyance of such animals intended for export to the ocean-steamer or other vessels, and of all attendants and their clothing, and of all head-ropes and other appliances used in such exportation, by such orders and regulations as the Secretary of the Treasury may prescribe; and if, upon such inspection, any such animals shall be adjudged, under the regulations of the Secretary of the Treasury, to be infected or to have been exposed to infection, so as to be dangerous to other animals, they shall not be allowed to be placed upon any vessel for exportation; the expense of all the inspection and disinfection provided for in this section to be borne by the owners of the vessels on which such animals are exported.

Sec. 17. That the Secretary of the Treasury may cause to be made a careful inspection of all salted pork and bacon intended for exportation, with a view to ascertain and determine whether the same is wholesome and sound for human food, and may authorize the proper officer of the customs to give an official certificate clearly stating the condition in which such pork and bacon is found; and no clearance shall be given to any vessel having on board salted pork or bacon found, on such inspection, to be unwholesome for human food; but any pork or bacon may be exported to any foreign country without such inspection when it is proved to the satisfaction of the collector of customs that the same has been properly salted and packed more than sixty days prior to the date of the application for inspection or manifest for exportation; and such collector shall in that case certify to the fact that such meat was properly salted and packed more than sixty days before the date of such entry. One copy of any certificate issued by such collector or inspector shall be filed in the custom-house where such inspection is made, another copy shall be attached to the invoice of each separate shipment of such meat, and a third copy shall be delivered to the consignor or shipper of such meat; and as evidence that packages of salted pork and bacon have been inspected in accordance with the provisions of this act, and found to be wholesome and sound for human food, and for the identification of the same, such marks, stamps, or other devices as the Secretary of the Treasury may by regulation prescribe shall be affixed to each of such packages.

SEC. 18. That it shall be unlawful to import into the United States any adulterated or unwholesome food, or vinous, spirituous, or malt liquor adulterated or mixed with any poisonous or noxious chemical drug or other ingredient injurious to health. Any person who shall knowingly import into the United States any such adulterated food or drink, knowing or having reason to believe the same to be adulterated, being the owner, or the agent of the owner, or the consignor or consignee of the owner, or in privity with them, assisting in such unlawful act, shall be deemed guilty of a misdemeanor, and liable to prosecution therefor in the District Court of the United States for the district into which such property is imported; and, on conviction, such person shall be fined in a sum not exceeding $1,000 for each separate shipment, and may be imprisoned by the court for a term not exceeding one year, or both, at the discretion of the court.

SEC. 19. That any article designed for consumption as human food or drink, and any other article of the classes or description mentioned in this act, which shall be imported into the United States contrary to its provisions, shall be forfeited to the United States, and shall be proceeded against under the provisions of chapter 18 of title 13 of the Revised Statutes of the United States; and such imported property so declared forfeited may be destroyed or returned to the importer for exportation from the United States, after the payment of all costs and expenses, under such regulation as the Secretary of the Treasury may prescribe; and the Secretary of the Treasury may cause such imported articles to be inspected or examined in order to ascertain whether the same have been so unlawfully imported.

SEC. 20. That whenever the President is satisfied that there is good reason to believe that any importation is being made, or is about to be made, into the United States from any foreign country of any article used for human food or drink that is adulterated to an extent dangerous to the health or welfare of the people of the United States, or any of them, he may issue his proclamation suspending the importation of such articles from such country for such period of time as he may think necessary to prevent such importation; and during such period it shall be unlawful to import into the United States from the countries designated in the proclamation of the President any of the articles the importation of which is so suspended.

SEC. 21. That whenever the President shall be satisfied that unjust discriminations are made by or under the authority of any foreign state against the importation to or sale in such foreign state of any product of the United States, he may direct that such products of such foreign state so discriminating against any product of the United States as he may deem proper shall be excluded from importation to the United States; and in such case he shall make proclamation of his direction in the premises, and therein name the time when such direction against importation shall take effect, and after such date the importation of the articles named in such proclamation shall be unlawful. The President may at any time revoke, modify, terminate, or renew any such direction as, in his opinion, the public interest may require. The foregoing provisions of this section shall expire on the 4th day of March, A. D. 1887, and shall no longer be in force.

In explanation of this amendment Mr. Miller said: "If there is a very great objection to this amendment the Committee on Foreign Relations—and I certainly share in that opinion—are not particular about its being incorporated on this bill. We regard this as a measure of great importance, even greater than the bill under consideration, and that it is destined to do very much more good to the cattle interest of this country than the bill that it proposes to amend, and we hesitated for some time whether we would desire to incorporate a measure like this, which has been so carefully drawn and carefully considered as this has been, upon such a bill as has been brought here from the House of Representatives. But, believing that this measure ought to pass and that it is now very difficult for the House to reach any bill which the Senate may pass at this session, we thought it best to suggest at any rate to the friends of the bill under consideration that we would incorporate this as an amendment, believing that it supplements and improves and rounds out the measure and makes it of some value.

"The other branch of it which relates to the inspection of meats intended for exportation, the Senate has had ample opportunity to read and digest and understand, because it was reported some time ago and attracted a great deal of attention when it was reported. I think every Senator is perfectly familiar with the provisions, and I think every Senator will agree that some such law as this ought to be enacted.

"We have come to the conclusion that the discrimination made against American meats in foreign countries is unwarranted, perhaps based upon a false assumption of facts; at all events that there is no reason for the prohibition of American meats in England and France and the other countries which have prohibited them. The investigation which we have been enabled to give the subject convinced us that the American meats are not infectious, that not a single case of trichina has ever occurred in any part of Europe from the use of American salted meats, that the curing process entirely destroys the parasites. The evidence upon that subject is overwhelming. It is contained in a report which was made by the Committee on Foreign Relations and has been printed. It is voluminous, and contains all the evidence and facts which are necessary to bring any one to that conclusion.

"I do not desire to take up the time of the Senate in a discussion of this measure. The Senator from Kentucky asked me in regard to the twenty-first section as to what was meant by that. We mean precisely this: that the President of the United States shall have the power, as the head of this nation, to issue a proclamation, whenever he thinks the public interest requires it, excluding from importation into the United States any article of commerce from a foreign state which has discriminated against any product of the United States. We believe that although the time may not have come just now for the exercise of such a power, the power ought to be lodged somewhere, to be exercised as occasion may require, so that where willful discriminations are made against the products of the United States without reason, without cause, as we believe they have been and are being made to-day, the only way to deal with that subject is to place it in the power of the Executive of this nation to adopt similar measures in respect to those nations which discriminate against our products. That is all there is of that."

Against the consideration of the amendment Mr. Beck, of Kentucky, said:

"The reason why I asked that question of the Senator from California was to have an opportunity to say to him that this matter is entirely too important and too comprehensive, without discussing the merits of it, to be tacked on as an amendment to a bill of this sort. The twenty-first section, of course, brings up all the questions of our foreign relations with France, Germany, England, and all the other nations of Europe. The Committee on Foreign Relations published a volume, which I have read with a great deal of care and with much interest. It has also published another volume for the use of that committee, a copy of which was furnished to me by the kindness of the chairman—perhaps all Senators have not seen it—giving all the tariff laws of the nations of Europe and of all the world, I believe. When this question comes to be discussed it is going, of course, to involve a very careful consideration, and it was for that reason I suggested to him to explain the amendment so that the Senate might see that this was too great a question altogether to attach to a bill that, as I understand it, is simply giving power to the officers of the United States to manage our internal affairs so as to prevent the spread of contagious diseases of animals."

Bureau of Labor Statistics.—April 19, 1884, the Committee on Labor, of the House, reported with amendments a bill to establish and maintain a Bureau of Labor Statistics. It provided for the creation of "a department of labor statistics at the seat of government," with a commissioner to be appointed by the President, by and with the advice and consent of the Senate. It gave minute directions as to the subjects into which the commissioner should push his investigations, authorized him to issue circulars of inquiry, fixed his salary and term of office, provided for the appointment of a chief clerk, and set a limit to the expenditures of the department. In a brief speech, Mr. Foran, of Ohio, made a statement of the necessity for the passage of such a measure. He said:

"Mr. Chairman, I doubt if there has ever been before the American Congress a question of greater importance, or one that more directly concerns the welfare of humanity, than that which is being now considered by this House. It will be impossible, in the few brief moments I am permitted to speak, to do more than call your attention to the general scope and purpose of the measure now under discussion. It is a generally accepted axiom that bad laws and evil legislation originate in and spring from that cupidity and selfishness that has ever been a predominant characteristic in human nature. This proposition is only partially true. A very considerable portion of the imperfect and vicious legislation of which the people justly complain, may be traced to a lack of reliable data and accurate knowledge, upon the part of the average law-maker, of a true conception or comprehensive understanding of the science of society, or that science which M. Comte more compactly and succinctly designates sociology—a science which concerns itself with all the various phenomena incident to man in society, and resulting from the multiform actions and peculiar and changing conditions of collective masses of the human species existing in social life.

"The great error and mistake of the average statesman is the assumption that society should be conformed to statute law—that every enactment of our legislative bodies, whether based upon correct principles or not, should be in effect an iron mold into which society should be violently forced and driven and be compelled to adapt itself to the conditions of the law. Following this false and erroneous theory of legislation, our law-makers frequently enact laws in blind ignorance of the complex or even elementary principles of social science. Laws are enacted simply to meet necessities and exigencies as they arise, without reference to the causes which occasioned them. Like the empirical physician, the law-maker too frequently attempts to cure a diseased body-politic by the enactment of laws based upon symptomatical manifestations. The true theory of legislation, however, as I understand it, is based upon the idea that laws should be enacted in accordance with and suited to the phenomenal conditions of the social state of the people to be governed by them; that instead of endeavoring to control and manage events after their occurrence, the province of wise statesmanship is to prevent future evils by legislation based on a thorough comprehension of existing social conditions—that is, to determine by statistical and speculative inquiry the organic causes of impending or threatened social disorders, and what under all the circumstances are the general conditions of legislative operations best calculated to prevent them.

"To aid the legislator in this direction is the principal object of this bill. The creation of the bureau proposed in this bill will lead to a greater, profounder, and more extended knowledge of the general character, habits, manners, customs, and dispositions of the people, their social status, their progress in civilization and intelligence, their material and sanitary condition, their advancement in moral and mental culture, their different classifications as to laborers, skilled and unskilled, professional men, capitalists, and non-producers, as well as the production and distribution of wealth. The object of the bureau, tersely stated, is to promote a more general diffusion and better comprehension of social science. Sociological science is based upon statistics which collects, collates, arranges, and compares facts, from which the statesman ascertains, and without which he can not ascertain, those great principles in accordance with which the state must act if it would promote and foster the well-being and happiness of its citizens. It is from this source alone that the political economist can determine an equitable and just rule to govern the production and distribution of wealth.

"It is hardly possible that any gentleman upon this floor will deny that correct and systematized information of the character here outlined is not essentially and absolutely necessary to a comprehensive knowledge of social subjects and to a correct understanding and just conception of the exact condition of the country and the legislation necessary to more effectually advance the material and social well-being of the people. To my mind such data and information are of the greatest importance in tracing and determining the various circumstances by which evils and wrongs creep into society, as well as pointing out the safest and surest means of removing them, because from that source alone can be ascertained a knowledge of the action and reaction which is forever taking place among the different and manifold elements of which society is composed."

The bill was amended in several points, more or less important, and passed the House April 21st, by the following vote:

Yeas—G. E. Adams, J. J. Adams, Alexander, Arnot, Atkinson, Bagley, Bayne, Beach, Bisbeo, Blanchard, Boyle, Brainerd, Breckenridge, Breitung, F. B. Brewer, W. W. Brown, Budd, Calkins, Felix Campbell, J. M. Campbell, Cannon, Carleton, Cassidy, Clay, Cobb, Collins, Cosgrove, W. R. Cox, D. B. Culberson, W. W. Culbertson, Curtin, Cutcheon, Davidson, G. R. Davis, L. H. Davis, R. T. Davis, Deuster, Dingley, Dockery, Dunham, Eldredge, Elliott, Ermentrout, I. N. Evans, Everhart, Ferrell, Fiedler, Foran, Funston, Geddes, George, Goff, Greenleaf, Halsell, Hanback, Hancock, Hardeman, Hardy, Hauner, Hart, H. H. Hatch, W. H. Hatch, Haynes, D. B. Henderson, T. J. Henderson, Henley, Hepburn, G. W. Hewitt, Hiscock, Hitt, Holman, Holmes, Hopkins, Horr, Housеman, Howey, Hunt, Hurd, James, Jeffords, Johnson, B. W. Jones, J. H. Jones, Jordan, Kasson, King, Kleiner, Lacey, Laird, Lamb, Lanham, Lawrence, Long, Lovering, Lowry, McAdoo, McCoid, McComas, McKinley, Maybury, Maillard, J. F. Miller, S. H. Miller, Mitchell, Money, Morey, Morgan, Morrison, Morse, Muldrow, Murray, Mutchler, Neece, Nelson, Nutting, J. J. O'Neil, Patton, Payne, Payson, Pierce, S. W. Peel, S. J. Peelle, Perkins, Peters, Post, Price, Pryor, Pusey, Randall, Ranney, G. W. Ray, Ossian Ray, Reese, Riggs, W. E. Robinson, Rockwell, Rosecrans, Rowell, Ryan, Seney, Seymour, Singleton, C. R. Skinner, T. G. Skinner, Slocum, Smith, Snyder, Spriggs, Springer, Steele, Stevens, Charles Stewart, Stone, Strait, Struble, C. A. Sumner, D. H. Sumner, E. B. Taylor, Tully, Valentine, Van Alstyne, Vance, Van Eaton, Wait, Wakefield, Richard Warner, Weaver, Wellborn, Weller, Wemple, J. D. White, Whiting, Williams, Willis, James Wilson, E. B. Winans, Wolford, Wood, Worthington, Yaple, York, Young—182.

Nays—Aiken, Ballentine, Bennett, Bland, Blount, Buchanan, Candler, Clements, Crisp, Dibrell, Dunn, J. H. Evins, Hemphill, J. H. Rogers, Scales, Shaw, Tillman, H. G. Turner, Oscar Turner—19.

Not Voting—Anderson, Barbour, Barksdale, Barr, Belford, Belmont, Bingham, Blackburn, Boutelle, Bowen, J. H. Brewer, Broadhead, T. M. Browne, Brumm, Buckner, Burleigh, Burns, Cabell, Caldwell, Chace, Clardy, Connolly, Converse, Cook, Covington, S. S. Cox, Cullen, Dargan, Dibble, Dorsheimer, Dowd, Duncan, Eaton, Ellis, Ellwood, Findlay, Finerty, Follett, Forney, Fyan, Garrison, Gibson, Glascock, Graves, Green, Guenther, Hammond, Herbert, A. S. Hewitt, Hill, Hoblitzell, Holton, Hooper, Houk, Hutchins, J. K. Jones, J. T. Jones, Kean, Keifer, Kelley, Kellogg, Ketcham, Le Fevre, Lewis, Libbey, Lore, Lyman, McCormick, McMillin, Matson, Milliken, Mills, Morrill, Moulton, Muller, Murphy, Nicholls, Oates, Ochiltree, O'Hara, Charles O'Neill, Paige, Parker, Pettibone, Phelps, Poland, Potter, Rankin, Reagan, Reed, Rice, Robertson, J. S. Robinson, W. F. Rogers, Russell, Shelley, Smalls, Spooner, Stephenson, J. W. Stewart, Stockslager, Storm, Talbott, J. D. Taylor, J. M. Taylor, Thomas, Thompson, Throckmorton, Townshend, Tucker, Wadsworth, Ward, A. J. Warner, Washburn, Milo White, Wilkins, W. L. Wilson, John Winans, G. D. Wise, J. S. Wise, Woodward—121.

The bill came up for discussion in the Senate May 14, and was severely criticised, especially by Mr. Morgan, of Alabama, and Mr. Ingalls, of Kansas, both of whom ridiculed its provisions. The serious objections made by them were summarized in the former gentleman's opening speech:

"I fail to see in the legislation of the United States in all of its past history any real discrimination against the laboring classes of this country, as laboring men, or as citizens. We have upon our statute-books a tariff which I think operates very unjustly against the operatives, those men who are employed as laborers by the manufacturers. At the same time it must be admitted that the laborers themselves are the men who sustain that tariff. Misguided in respect to its effects upon their own prosperity, they are used by the manufacturers constantly at the ballot-box, for the purpose of sustaining the burdens under which they rest. Whether they want to be better informed on that question or not, I do not know. I think they should be, and I should be glad of an opportunity of giving them more full and accurate information as to the operation of that solitary law upon our statute-book which has any injurious effect on the laboring classes of this country. In the further debate of this question, I think I might well require of every Senator who will participate in it, to point out any statute of the United States under which the laboring classes are either wronged or neglected, unless it may be this tariff legislation. I am not aware of any other.

"There may be a want of information on the part of representatives in both houses as to the condition of the laboring classes in the United States, and if so, it is the fault of the representatives themselves. Our representative system is divided up so that each 150,000 people, or about that number, is represented by a separate representative in the House, chosen by the people, and if they and the Senators in this body are really not informed as to the condition of their respective constituencies the fault is that of the representative and not of the law. I do not believe that there is any gross ignorance in either branch of Congress as to the actual condition and wants and necessities of the people of this country. It may not be information collected and tabulated in form so that it can be read by every man; but when you take the aggregate information of the two bodies upon the condition of the people they represent, I believe that it is as extensive and as accurate as the information that is possessed by legislators in any country in the world. It would be a convenience to political economists, and to social economists, and to writers and speculators upon economic questions, to have this all collected and tabulated. It is also for the interest and honor of the country that the exact condition of all classes in the country should be known. I therefore am not opposed to collecting these statistics. On the contrary, during the time I have had the honor to serve upon the Committee on the Census, which is since its first organization, it has been a part of my duty that I have most willingly and cheerfully performed, to try and assist in the collection of statistics touching every economic question in the United States, and the census of 1880, although not entirely accurate, still more accurate than any that ever preceded it, is a full and complete narrative of the condition of almost every industry of any importance in the United States, and of a good many that are not of any importance, at least, not of any great importance.

"Now, we have a Bureau of Statistics in the Treasury Department, presided over by an eminent, able statistician, Mr. Nimmo, to whom the Senate is constantly in the habit of applying for the purpose of getting information upon almost every statistical subject that concerns legislation in this body. The main value of a bureau of statistics rests in the capacity of the man who has its direction, and in his integrity. If you have a really able statistician at the head of that bureau, and he is furnished with a sufficiency of clerical force, means enough to get information, he will acquire, digest, and put before the country in an authentic and proper form all the necessary facts to guide us in legislation, and to guide the country in its investigation of the moral, social, and economical conditions in every respect. We have such a bureau, and we have such a man. I do not perceive the necessity of organizing another bureau to conduct this business, and I think it would be good public economy to place this subject under the control of that bureau, as is proposed to be done by the amendment of the Senator from Arkansas (Mr. Garland).

"Some pathetic appeals are made to the Senate in reference to the wants and demands of what are called the laboring classes. It is said that the Senators upon the Committee on Education and Labor, in their investigations of this subject through the country, have become informed generally by black and white, by people of all classes, South, North, East, and West, wherever they were in the course of their investigations, that they desire a bureau for the purpose of increasing their happiness and their prosperity, and for the purpose of giving more emphasis to the facts relating to their condition, whether it be good or whether it be bad. I should like to gratify any portion of the people of the United States in any desire that they have upon a question of this kind, or indeed upon any question. At the same time, it is the duty of the Senate of the United States to consult a sound and wise public policy in respect of this as in respect of everything else."

May 28d, Mr. Garland, of Arkansas, moved to recommit the bill, but the motion was lost by the following vote:

Yeas—Bayard, Butler, Camden, Coke, Colquitt, Fair, Garland, Harris, Jackson, Jonas, Jones of Florida, Lapham, Maxey, Morgan, Pendleton, Slater, Walker, Williams—18.

Nays—Aldrich, Allison, Blair, Call, Cameron of Wisconsin, Conger, Cullom, Dolph, Edmunds, George, Harrison, Hawley, Hill, Hoar, Jones of Nevada, Kenna, Logan, McMillan, Morrill, Palmer, Pike, Platt, Pugh, Sawyer, Vau Wyck, Vest, Voorhees, Wilson—28.

Absent—Anthony, Beck, Bowen, Brown. Cameron of Pennsylvania, Cockrell, Dawes, Farley, Frye, Gibson, Gorman, Groome, Hale, Hampton, Ingalls, Lamar, McPherson, Mahone, Manderson, Miller of California. Miller of New York, Mitchell, Plumb, Ransom, Riddleberger, Sabin, Saulsbury, Sewell, Sherman, Vance—80.

Mr. Garland also moved to strike out all after the enacting clause, and insert the following as a substitute for the House bill:

That section 342, chapter 10, of the Revised Statutes be amended by adding thereto the following words, namely:

"The Chief of the Bureau of Statistics shall, under such regulations as the Secretary of the Treasury may prescribe, annually collect and report to Congress the statistics of and relating to marriage and divorce in the several States and Territories and the District of Columbia, and pertinent information relating to all departments of labor and production in the United States, especially touching the pecuniary, industrial, social, educational, and sanitary condition of the laboring classes, and to the permanent prosperity of the productive industry of the whole country; and the salary of the chief of such bureau shall be $3,500."

The motion was tabled by the following vote:

Yeas—Aldrich, Allison, Blair, Call, Cameron o, Wisconsin, Conger, Cullom, Edmunds, George, Hale Harrison, Hawley, Hill, Hoar, Jones of Nevada, Lapham, Logan, McMillan, Morrill, Pike, Platt, Pugh, Sawyer, Sherman, Voorhees, Wilson—26.

Nays—Bayard, Butler, Camden, Cockrell, Coke, Colquitt, Dolph, Fair, Garland, Gorman, Harris, Jacksou, Jonas, Jones of Florida, Kenna, Maxey, Morgan, Pendleton, Ransom, Slater, Van Wyck, Vest, Walker, Williams—24.

Absent—Anthony, Beck, Bowen, Brown, Cameron of Pennsylvania, Dawes, Farley, Frye, Gibson, Groome, Hampton, Ingalls, Lamar, McPherson, Mahone, Manderson, Miller of California, Miller of New York, Mitchell, Palmer, Plumb, Riddleberger, Sabiu, Saulsbury, Sewell, Vance—26.

Mr. Aldrich, of Rhode Island, offered, by way of amendment, the following substitute for the House bill:

Be it enacted, etc., That there shall be established in the Department of the Interior a bureau of labor, which shall be under the charge of a commissioner of labor, who shall be appointed by the President, by and with the advice and consent of the Senate. The commissioner of labor shall hold his office for four years, and until his successor shall be appointed and qualified, unless sooner removed, and shall receive a salary of $3,000 a year. The commissioner shall collect information upon the subject of labor, its relations to capital, the hours of labor, and the earnings of laboring men and women, and the means of promoting their material, social, intellectual, and moral prosperity. The Secretary of the Interior shall appoint a chief clerk, who shall receive a salary of $2,000 per annum, and such other employés as may be necessary for the said bureau: *Provided*, That the total expense shall not exceed $25,000 per annum. During the necessary absence of the commissioner, or when the office shall become vacant, the chief clerk shall perform the duties of commissioner. The commissioner shall annually make a report in writing to the Secretary of the Interior of the information collected and collated by him, and containing such recommendations as he may deem calculated to promote the efficiency of the bureau.

The substitute was adopted by the following vote:

Yeas—Aldrich, Allison, Bayard, Butler, Camden, Cockrell, Coke, Colquitt, Dawes, Dolph, Edmunds, Fair, Farley, Garland, Gorman, Hale, Harris, Hawley, Ingalls, Jackson, Jonas, Jones of Florida, Kenna, Lapham, Maxey, Miller of New York, Mitchell, Morgan, Morrill, Pendleton, Plumb, Pugh, Ransom, Slater, Van Wyck, Vest, Walker—87.

Nays—Blair, Call, Cameron of Wisconsin, Conger, Cullom, George, Harrison, Hill, Hoar, Jones of Nevada, Logan, McMillan, Pike, Platt, Sawyer, Sherman, Voorhees, Wilson—18.

Absent—Anthony, Beck, Bowen, Brown, Cameron of Pennsylvania, Frye, Gibson, Groome, Hampton, Lamar, McPherson, Mahone, Manderson, Miller of California, Palmer, Riddleberger, Sabin, Saulsbury, Sewell, Vance, Williams—21.

The measure then passed the Senate with only two dissenting votes, those of Colquitt, of Georgia, and Saulsbury, of Delaware. The House non-concurred in the Senate amendment, and a conference committee was appointed, which decided to accept the bill as passed by the Senate, with the proviso that the Secretary of the Interior when appointing a chief clerk shall do so "upon the recommendation of said commissioner." The report was agreed to, and the measure went to the President and was approved by him June 28.

Chinese Immigration.—May 3, the House took up the bill amending the act approved May 6, 1882, "to execute certain treaty stipulations relating to Chinese." The debate upon the measure in the House followed old lines, and brought out nothing new in thought or interesting in oratory. The purpose and character of the measure were set forth by Mr. Rice, of Massachusetts, its leading opponent, as follows:

"In 1868 this country made a treaty with China under the lead of Anson Burlingame, of Massachusetts, whom some of us there still remember with pride and affection. It was a treaty granting mutual privileges and rights to the inhabitants of the two countries. China, before that, had walled herself in from the rest of the world; but by friendly negotiations on our part, preceded by some acts of hostility on the part of European nations, that Chinese wall was broken down and this friendly treaty negotiated between this country and that. Under the operation of that treaty 100,000 Chinamen got into this country, and then arose the cry of alarm from the Pacific coast. Something must be done to protect the people of that coast from this immigration of yellow, non-voting laborers. They could bear the immigration of all others, but the yellow laborers, who have no votes, must not be admitted within the confines of the free republic, and an act was forced through Congress under the lead of these same representatives from the Pacific coast, for whom, I beg to say, I have the highest regard and consideration, which was vetoed by President Hayes because it was in violation of the Burlingame treaty which we had obtained from China.

"That veto of the President was accepted, but demand was made for some action, and subsequently a commission was sent by this Government to China, and a supplemental treaty was made with China by which some relief might be afforded to our friends upon the Pacific coast, and yet no violation to the treaty be committed—James B. Angel being the leading commissioner on the part of the United States. That supplemental treaty provided—what? It provided for a limited restriction of the immigration of whom? Of the Chinese laborers into this country; a limited restriction which should be reasonable.

"Only laborers are to be included in the limitations; and the second article of that supplemental treaty provides that all other Chinese subjects may still continue to come and go into the United States 'of their own free will and accord, as the subjects of the other and more favored nations.' So that—and I want the representatives of the Pacific coast to correct me if I make any misstatement, or fall into error anywhere; they shall have time enough to do it—so that this supplemental treaty provides only for restriction as to laborers, and permits all other Chinese subjects to come and go of their own free will and accord into this country as ours into theirs.

"The Forty-seventh Congress, after the ratification of this supplemental treaty under the lead of these Pacific coast representatives, passed a bill which was vetoed by President Arthur, because it violated even the modified and supplemental treaty, in that it prohibited the importation of all Chinese laborers into this country absolutely for the term of twenty years. It was held by the President that that was a violation even of the modified treaty, and therefore he vetoed it, and the veto was sustained.

"Still the cry came up for relief, and the Forty-seventh Congress was held by the throat until it passed the act which it is attempted here to-day to amend. That act was passed May 6, 1882, and went into effect August 4th of the same year. That act was passed, signed, and approved, and has now been in operation for nearly two years. I say it has produced the result which it was intended to effect, and the proposed amendatory act will add nothing to it within the scope of the treaty which we have made with China."

Mr. Henley, of California, summed up the case for the bill in a few words: "It contains no idea, no doctrine, that is novel, or strange, or dangerous, or that has not been fully and exhaustively considered in a bill heretofore passed by an antecedent Congress, and of which this is amendatory. It has simply been found, through the practical operations of the prior act, that these Chinese, with that cunning and persistence which no one will deny them, have adopted methods and means to evade its provisions; and the only function of this bill is simply to strenghten and effectuate the purpose contemplated by the original act.

"The minority report, unintentionally, no doubt, is calculated to mislead the casual observer in this respect, and I pray gentlemen to understand that a preceding Congress, on the passage of the first act, has settled every principle that is touched upon in the present act. Hence the only question now presented is, Shall we make effectual a law and a policy heretofore determined upon, or shall we let that policy go for want of proper executory power?"

The measure was read by sections in Committee of the Whole, amended, and passed as follows:

That section 1 of the act entitled "An act to execute certain treaty stipulations relating to Chinese," approved May 6, 1882, is hereby amended so as to read as follows:

"Whereas, in the opinion of the Government of the United States, the coming of Chinese laborers to this country endangers the good order of certain localities within the territory thereof: Therefore,

"*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled*, That from and after the passage of this act, and until the expiration of ten years next, after the passage of this act, the coming of Chinese laborers to the United States be and the same is hereby suspended, and during such suspension it shall not be lawful for any Chinese laborer to come from any foreign port or place, or having so come after the expiration of said ninety days, to remain within the United States."

Section 2 of said act is hereby amended so as to read as follows:

"SEC. 2. That the master of any vessel who shall knowingly bring within the United States on such vessel, and land, or attempt to land, or permit to be landed any Chinese laborer, from any foreign port or place, shall be deemed guilty of a misdemeanor, and on conviction thereof shall be punished by a fine of not more than $500 for each and every such Chinese laborer so brought, and may also be imprisoned for a term not exceeding one year."

Section 3 of said act is hereby amended so as to read as follows:

"SEC. 3. That the two foregoing sections shall not apply to Chinese laborers who were in the United States on the 17th day of November, 1880, or who shall have come into the same before the expiration of ninety days next after the passage of the act to which this act is amendatory; nor shall said section apply to Chinese laborers who shall produce to such master before going on board such vessel, and shall produce to the collector of the ports in the United States at which such vessel shall arrive, the evidence hereinafter in this act required of his being one of the laborers in this section mentioned; nor shall the two foregoing sections apply to the case of any master whose vessel, being bound to a port not within the United States, shall come within the jurisdiction of the United States by reason of being in distress or in stress of weather, or touching at any port of the United States on its voyage to any foreign port or place: *Provided*, That all Chinese laborers brought on such vessel shall not be permitted to land except in case of absolute necessity, and must depart with the vessel on leaving port."

Section 4 of said act is hereby amended so as to read as follows:

"SEC. 4. That for the purpose of properly identifying Chinese laborers who were in the United States on the 17th day of November, 1880, or who shall have come into the same before the expiration of ninety days next after the passage of the act to which this act is amendatory, and in order to furnish them with the proper evidence of their right to go from and come to the United States as provided by the said act and the treaty between the United States and China dated Nov. 17, 1880, the collector of customs of the district from which any such Chinese laborer shall depart from the United States shall, in person or by deputy, go on board each vessel having on board any such Chinese laborer, and cleared or about to sail from his district for a foreign port, and on such vessel make a list of all such Chinese laborers, which shall be entered in registry-books to be kept for that purpose, in which shall be stated the individual, family, and tribal name in full, the age, occupation, when and where followed, last place of residence, physical marks or peculiarities, and all facts necessary for the identification of each of such Chinese laborers, which books shall be safely kept in the custom-house; and every such Chinese laborer so departing from the United States shall be entitled to and shall receive, free of any charge or cost, upon application therefor, from the collector or his deputy, in the name of said collector and attested by said collector's seal of office, at the time such list is taken, a certificate, signed by the collector or his deputy and attested by his seal of office, in such form as the Secretary of the Treasury shall prescribe, which certificate shall contain a statement of the individual, family, and tribal name in full, age, occupation, when and where followed, of the Chinese laborer to whom the certificate is issued, corresponding with the said list and registry in all particulars. In case any Chinese laborer, after having received such certificate, shall leave such vessel before her departure, he shall deliver his certificate to the master of the vessel; and if such Chinese laborer shall fail to return to such vessel before her departure from port, the certificate shall be delivered by the master to the collector of customs for cancellation. The certificate herein provided for shall entitle the Chinese laborer to whom the same is issued to return to and re-enter the United States upon producing and delivering the same to the collector of customs of the district at which such Chinese laborer shall seek to re-enter, and said certificate shall be the only evidence permissible to establish his right of re-entry; and upon delivering of such certificate by such Chinese laborer to the collector of customs at the time of re-entry in the United States, said collector shall cause the same to be filed in the custom-house and duly canceled.”

Section 6 of said act is hereby amended so as to read as follows:

“SEC. 6. That in order to the faithful execution of the provisions of this act, every Chinese person, other than a laborer, who may be entitled by said treaty or this act to come within the United States, and who shall be about to come to the United States, shall obtain the permission of and be identified as so entitled by the Chinese Government, or of such other foreign government of which at the time such Chinese person shall be a subject, in each case to be evidenced by a certificate issued by such government, which certificate shall be in the English language, and shall show such permission, with the name of the permitted person in his or her proper signature, and which certificate shall state the individual, family, and tribal name in full, title or official rank, if any, the age, height, and all physical peculiarities, former and present occupation or profession, when and where and how long pursued, and place of residence of the person to whom the certificate is issued, and that such person is entitled by this act to come within the United States. If the person so applying for a certificate shall be a merchant, said certificate shall, in addition to above requirements, state the nature, character, and estimated value of the business carried on by him prior to and at the time of his application as aforesaid: *Provided*, That nothing in this act nor in said treaty shall be construed as embracing within the meaning of the word ‘merchant,’ hucksters, peddlers, or those engaged in taking, drying, or otherwise preserving shell or other fish for home consumption or exportation. If the certificate be sought for the purposes of travel for curiosity, it shall also state whether the applicant intends to pass through or travel within the United States, together with his financial standing in the country from which such certificate is desired. The certificate provided for in this act, and the identity of the person named therein, shall, before such person goes on board any vessel to proceed to the United States, be viséed by the indorsement of the diplomatic representative of the United States in the foreign country from which said certificate issues, or of the consular representative of the United States at the port or place from which the person named in the certificate is about to depart; and such diplomatic representative or consular representative whose indorsement is so required is hereby empowered, and it shall be his duty, before indorsing such certificate as aforesaid, to examine into the truth of the facts set forth in said certificate, and if he shall find upon examination that said or any of the statements therein contained are untrue it shall be his duty to refuse to indorse the same. Such certificate viséed as aforesaid shall be *prima facie* evidence of the facts set forth therein, and shall be produced to the collector of customs of the port in the district in the United States at which the person named therein shall arrive, and afterward produced to the proper authorities of the United States whenever lawfully demanded, and shall be the sole evidence permissible on the part of the person so producing the same to establish a right of entry into the United States; but said certificate may be controverted and the facts therein stated disproved by the United States authorities.”

Section 8 of said act is hereby amended so as to read as follows:

“SEC. 8. That the master of any vessel arriving in the United States from any foreign port or place shall at the same time he delivers a manifest of the cargo, and if there be no cargo, then at the time of making a report of the entry of the vessel pursuant to law, in addition to the other matter required to be reported, and before landing, or permitting to land, any Chinese passengers, deliver and report to the collector of customs of the district in which such vessel shall have arrived a separate list of all Chinese passengers taken on board his vessel at any foreign port or place, and all such passengers on board the vessel at that time. Such list shall show the names of such passengers (and if accredited officers of the Chinese, or of any other foreign government, traveling on the business of that government, or their servants, with a note of such facts), and the names and other particulars as shown by their respective certificates; and such list shall be sworn to by the master in the manner required by law in relation to the manifest of the cargo. Any refusal or willful neglect of any such master to comply with the provisions of this section shall incur the same penalties and forfeiture as are provided for a refusal or neglect to report and deliver a manifest of the cargo.”

Section 10 of said act is hereby amended so as to read as follows:

“SEC. 10. That every vessel whose master shall knowingly violate any of the provisions of this act shall be deemed forfeited to the United States, and shall be liable to seizure and condemnation in any district of the United States into which such vessel may enter or in which she may be found.”

Section 11 of said act is hereby amended so as to read as follows:

“SEC. 11. That any person who shall bring into or cause to be brought into the United States by land, or who shall aid or abet the same, or aid or abet the landing in the United States from any vessel, of any Chinese person not lawfully entitled to enter the United States, shall be deemed guilty of a misdemeanor, and shall, on conviction thereof, be fined in a sum not exceeding $1,000, and imprisoned for a term not exceeding one year.”

Section 12 of said act is hereby amended so as to read as follows:

“SEC. 12. That no Chinese person shall be permitted to enter the United States by land without producing to the proper officer of customs the certificate in this act required of Chinese persons seeking to land from a vessel. And any Chinese person found unlawfully within the United States shall be caused to be removed therefrom to the country from whence he came, and at the cost of the United States, after being brought before some justice, judge, or commissioner of a court of the United States and found to be one not lawfully entitled to be or to remain in the United States; and in all such cases the person who brought or aided in bringing such person to the United States shall be liable to the Government of the United States for all necessary expenses incurred in such investigation and removal; and all peace officers of the several States and Territories of the United States are hereby invested with the same authority as a marshal or United States marshal in reference to carrying out the provisions of this act or the act of which this is amendatory, as a marshal or deputy-marshal of the United

States, and shall be entitled to like compensation, to be audited and paid by the same officers. And the United States shall pay all costs and charges for the maintenance and return of any Chinese person having the certificate prescribed by law as entitling such Chinese person to come into the United States, who may not have been permitted to land from any vessel by reason of any of the provisions of this act."

Section 13 of said act is hereby amended so as to read as follows:

"Sec. 13. That this act shall not apply to diplomatic and other officers of the Chinese or other governments traveling upon the business of that government, whose credentials shall be taken as equivalent to the certificate in this act mentioned, and shall exempt them and their body and household servants from the provisions of this act as to other Chinese persons."

Section 15 of said act is hereby amended so as to read as follows:

"Sec. 15. That the provisions of this act shall apply to all subjects of China, and Chinese, whether subjects of China or any other foreign power; and the words "Chinese laborers," wherever used in this act, shall be construed to mean both skilled and unskilled laborers and Chinese employed in mining."

Sec. 16. That any violation of any of the provisions of this act, or of the act of which this act is amendatory, the punishment of which is not otherwise herein provided for, shall be deemed a misdemeanor, and shall be punishable by a fine not exceeding $1,000, or by imprisonment for not more than one year, or by both such fine and imprisonment.

Sec. 17. That nothing contained in this act shall be construed to affect any prosecution or other proceedings, criminal or civil, begun under the act of which this is amendatory; but such prosecution or other proceeding, criminal or civil, shall proceed as if this act had not been passed.

The vote in the House on this measure was as follows:

Yeas—Aiken, Alexander, Atkinson, Bagley, Barksdale, Bayne, Beach, Blanchard, Bland, Boyle, Brainerd, Breckinridge, W. W. Brown, Brumm, Buchanan, Buckner, Budd, Burns, Caldwell, J. M. Campbell, Candler, Carleton, Cassidy, Clardy, Clay, Clements, Cobb, Collins, Connolly, Converse, Cook, Cosgrove, S. S. Cox, Crisp, D. B. Culberson, Cullen, Cutcheon, Dargan, G. R. Davis, Deuster, Dibble, Dibrell, Dockery, Dowd, Dunham, Dunn, Eaton, Elliott, Ellwood, Ermentrout, J. H. Evins, Ferrell, Fiedler, Finerty, Follett, Foran, Forney, Fyan, Garrison, George, Gibson, Glascock, Goff, Graves, Green, Greenleaf, Guenther, Halsell, Hammond, Hancock, Hardeman, W. H. Hatch, D. B. Henderson, Henley, Hepburn, Herbert, G. W. Hewitt, Hill, Hiscock, Holman, Holmes, Hopkins, Horr, Houk, Houseman, Hurd, Jeffords, B. W. Jones, J. H. Jones, King, Lacey, Lamb, Lanham, Lawrence, Le Fevre, Lewis, Lovering, Lowry, McAdoo, McCoid, McComas, McCormick, McKinley, McMillin, Matson, Maybury, J. F. Miller, S. H. Miller, Milliken, Mitchell, Money, Morgan, Morrison, Murphy, Murray, Neece, Nutting, Oates, J. J. O'Neill, Paige, Patton, Pierce, S. W. Peel, S. J. Peelle, Pettibone, Post, Pryor, Pusey, Randall, Rankin, Reese, Robertson, J. S. Robinson, J. H. Rogers, W. F. Rogers, Rosecrans, Rowell, Scales, Seney, Seymour, Shaw, Shelley, Singleton, T. G. Skinner, Slocum, Smith, Springer, Steele, Stephenson, Charles Stewart, Stockslager, Strait, Struble, C. A. Sumner, D. H. Sumner, J. M. Taylor, Throckmorton, Tillman, Tully, H. G. Turner, Oscar Turner, Van Alstyne, Vance, Van Eaton, Wakefield, Ward, Richard Warner, Weaver, Wellborn, Weller, Wemple, Milo White, Whiting, Wilkins, Williams, Willis, James Wilson, W. L. Wilson, E. B. Winans, John Winans, G. D. Wise, Wolford, Worthington, Yaple—184.

Nays—G. E. Adams, F. B. Brewer, T. M. Browne, Everhart, T. J. Henderson, Hitt, Kean, Lyman, Price, Rice, C. R. Skinner, Smalls, Spooner—13.

Not Voting—J. J. Adams, Anderson, Arnot, Ballentine, Barbour, Barr, Belford, Belmont, Bennett, Bingham, Bisbee, Blackburn, Blount, Boutelle, Bowen, Breitung, J. H. Brewer, Broadhead, Burleigh, Cabell, Calkins, Felix Campbell, Cannon, Chace, Covington, W. R. Cox, W. W. Culbertson, Curtin, Davidson, L. H. Davis, R. T. Davis, Dingley, Dorsheimer, Duncan, Eldredge, Ellis, I. N. Evans, Findlay, Funston, Geddes, Hanback, Hardy, Harmer, Hart, H. H. Hatch, Haynes, Hemphill, A. S. Hewitt, Hoblitzell, Holton, Hooper, Howey, Hunt, Hutchins, James, Johnson, J. K. Jones, J. T. Jones, Jordan, Kasson, Keifer, Kelley, Kellogg, Ketcham, Kleiner, Laird, Libbey, Long, Lore, Millard, Mills, Morey, Morrill, Morse, Moulton, Muldrow, Muller, Mutchler, Nelson, Nicholls, Ochiltree, O'Hara, Charles O'Neill, Parker, Payne, Payson, Perkins, Peters, Phelps, Poland, Potter, Ranney, G. W. Ray, Ossian Ray, Reagan, Reed, Riggs, Robinson, Rockwell, Russell, Ryan, Snyder, Spriggs, Stevens, J. W. Stewart, Stone, Storm, Talbott, E. B. Taylor, J. D. Taylor, Thomas, Thompson, Townshend, Tucker, Valentine, Wadsworth, Wait, A. J. Warner, Washburn, J. D. White, J. S. Wise, Wood, Woodward, York, Young—125.

The bill passed the Senate without debate, July 3d, by the following vote:

Yeas—Allison, Bayard, Beck, Blair, Butler, Call, Cameron of Pennsylvania, Cameron of Wisconsin, Cockrell, Coke, Conger, Cullom, Dolph, Fair, Farley, Garland, Groome, Hale, Hampton, Harris, Hill, Ingalls, Jones of Florida, Jones of Nevada, Logan, Manderson, Maxey, Miller of California, Miller of New York, Morgan, Palmer, Pendleton, Pike, Plumb, Pugh, Ransom, Sawyer, Sherman, Slater, Vance, Van Wyck, Vest, Voorhees—43.

Nays—Aldrich, Brown, Dawes, Edmunds, Hawley, Hoar, Lapham, McMillan, Mitchell, Morrill, Platt, Wilson—12.

Absent—Anthony, Bowen, Camden, Colquitt, Frye, George, Gibson, Gorman, Harrison, Jackson, Jonas, Kenna, Lamar, McPherson, Mahone, Riddleberger, Sabin, Saulsbury, Sewell, Walker, Williams—21.

The President approved the measure July 5, 1884.

American Merchant Marine.—In the House, a bill to remove certain burdens on the American merchant marine, and encourage the American foreign carrying-trade, was brought forward and passed April 26, 1884. A kindred measure had been discussed at length in the previous Congress, and there was only one section of the bill, as passed by the House, which might be regarded as involving a partisan issue. It was not a part of the measure reported from the committee on American ship-building and ship-owning interests, but was proposed by Mr. Cox, of New York, as follows:

Sec. 20. That from and after the passage of this act it shall be lawful for any citizen or citizens of the United States to import iron- and steel-built steamships of not less than 3,000 tons measurement free of duty; and such ships shall be admitted to American register: *Provided*, That said ships shall be the exclusive property of a citizen or citizens of the United States: *And provided further*, That such ships shall be excluded from the coastwise trade.

This section was adopted by the following vote:

Yeas—J. J. Adams, Aiken, Alexander, Arnot, Bagley, Ballentine, Beach, Blanchard, Breckinridge, Buchanan, Buckner, Budd, Burnes, Cabell, Caldwell, Felix Campbell, Candler, Clements, Cobb, Cosgrove, Covington, S. S. Cox, W. R. Cox, Crisp, D. B. Culberson, Dargan, Deuster, Dibble, Dibrell, Dockery, Dunn, Eaton, Eldredge, J. H. Evins, Forney, Fyan, Garrison, Glascock, Greenleaf, Guenther, Halsell, Hammond, Hancock, H. H. Hatch, W. H. Hatch, Henley, A. S. Hewitt, G. W. Hewitt, Hill, Holman, B. W. Jones, J. H. Jones, Kleiner, Lanham, Lovering, Lowry, McMillin, Matson, J. F. Miller, Mitchell, Morrison, Morse, Muller, Murray, Neece, Oates, Ochiltree, J. J. O'Neill, Pierce, S. W. Peel, Post, Pryor, Rankin, J. H. Rogers, W. F. Rogers, Seney, Shaw, Singleton, T. G. Skinner, Spriggs, Springer, Stevens, Charles Stewart, Storm, Strait, C. A. Sumner, D. H. Sumner, J. M. Taylor, Thompson, Throckmorton, Townshend, Tully, H. G. Turner, Oscar Turner, Vance, Van Eaton, Richard Warner, Wollborn, Weller, Wemple, Williams, Willis, W. L. Wilson, E. B. Winans, John Winans, G. D. Wise, Wolford, Woodward, Worthington, Yaple, York—111.

Nays—G. E. Adams, Bayne, Boutelle, Brainerd, F. B. Brewer, J. H. Brewer, T. M. Browne, W. W. Brown, J. M. Campbell, Collins, Converse, W. W. Culbertson, Cutcheon, R. T. Davis, Dingley, Dunham, Ellis, Ellwood, I. N. Evans, Everhart, Finerty, Funston, George, Haynes, T. J. Henderson, Holmes, Houk, Howey, Hunt, James, Jeffords, Johnson, Kasson, Kean, Ketcham, Lyman, McCoid, McComas, Milliken, Morrill, Nutting, Charles O'Neill, Parker, S. J. Peelle, Pettibone, Poland, Price, G. W. Ray, Reed, Rice, W. E. Robinson, Rockwell, Rosecrans, C. R. Skinner, Slocum, Smith, Spooner, Steele, Stephenson, Stone, J. D. Taylor, Thomas, Tillman, Wait, A. J. Warner, Washburn, J. D. White, Whiting, James Wilson—69.

Not Voting—Anderson, Atkinson, Barbour, Barksdale, Barr, Belford, Belmont, Bennett, Bingham, Bisbee, Blackburn, Bland, Blount, Bowen, Boyle, Breitung, Broadhead, Brumm, Burleigh, Calkins, Cannon, Carleton, Cassidy, Chase, Clardy, Clay, Connolly, Cook, Cullen, Curtin, Davidson, G. R. Davis, L. H. Davis, Dorsheimer, Dowd, Duncan, Elliot, Ermentrout, Ferrell, Fiedler, Findlay, Follett, Foran, Geddes, Gibson, Goff, Graves, Green, Hanback, Hardeman, Hardy, Harmer, Hart, Hemphill, D. B. Henderson, Hepburn, Herbert, Hiscock, Hitt, Hoblitzell, Holton, Hooper, Hopkins, Horr, Houseman, Hurd, Hutchins, J. K. Jones, J. T. Jones, Jordan, Keifer, Kelley, Kellogg, King, Lacey, Laird, Lamb, Lawrence, Le Fevre, Lewis, Libbey, Long, Lore, McAdoo, McCormick, McKinley, Maybury, Millard, S. H. Miller, Mills, Money, Morey, Morgan, Moulton, Muldrow, Murphy, Mutchler, Nelson, Nicholls, O'Hara, Paige, Patton, Payne, Payson, Perkins, Peters, Phelps, Potter, Pusey, Randall, Ranney, Ossian Ray, Reagan, Reese, Riggs, Robertson, J. S. Robinson, Rowell, Russell, Ryan, Scales, Seymour, Shelley, Smalls, Snyder, J. W. Stewart, Stockslager, Struble, Talbott, E. B. Taylor, Tucker, Valentine, Van Alstyne, Wadsworth, Wakefield, Ward, Weaver, Milo White, Wilkins, J. S. Wise, Wood, Young—142.

April 30, the Senate took up a measure, reported by the Committee on Commerce, to remove certain burdens on the American merchant marine, and encourage the American foreign carrying-trade, and for other purposes. The test vote in the shaping of this measure was on the adoption of the following amendment, moved by Mr. Vest, of Missouri, though the division was not strictly on partisan lines:

Sec. —. That section 2513 of the Revised Statutes of the United States be amended so as to read as follows, namely:

"Sec. 2513. All or any part of the materials, whether wood, steel, iron, copper, yellow-metal, bolts, spikes, sheathing, treenails; canvas for sails, whether flax or cotton; rigging and cordage, whether hemp, manila hemp, or iron wire; anchors and cables; iron or steel plates, castings and forgings; angle-irons, beams, masts, yards, rivets, bolts, nuts, screws, boiler-plates, tubes, paints, flues of all descriptions, furnaces, pig-iron and yellow-metal for castings, iron and steel blooms, shaft-forgings not turned or fitted, and all other material, metallic or otherwise, used in the construction of marine boilers and engines, and all other materials and appliances which may be necessary for the construction and equipment, alteration or repair, in whole or in part, of vessels, whether steam or sail vessels, to be built and furnished in the United States after the passage of this act, may be imported in bond, under such regulations as the Secretary of the Treasury may prescribe; and upon proof that such materials have been used for such purpose, no duties shall be collected or paid thereon."

Sec. —. That from and after the 1st day of January, 1886, any citizen or citizens of the United States may purchase the whole of any steam or sail vessel, not less than 3,000 tons net register, no matter where said vessel may have been built, whether within the United States or in a foreign country, or whether said vessel may have been owned in whole or in part by an alien or aliens; and said vessel shall be registered free of duty, as to her hull, spars, appliances, outfit, and equipment (including boilers, engines, and machinery, if a steam-vessel), as a vessel of the United States, by the collector in any port of entry of the United States to whom application for such registry may be made by said citizen or citizens, in the same manner as though said vessel had been built in the United States: *Provided*, That such ships shall be excluded from the coastwise trade.

The amendment was rejected by the following vote:

Yeas.—Bayard, Beck, Camden, Coke, Colquitt, Farley, Groome, Hampton, Jackson, Lamar, McPherson, Maxey, Morgan, Pendleton, Pugh, Ransom, Slater, Vance, Vest, Williams—20.

Nays.—Aldrich, Allison, Blair, Brown, Cameron of Wisconsin, Conger, Cullom, Dawes, Dolph, Frye, Gorman, Hale, Hawley, Hill, Hoar, Jones of Nevada, Logan, McMillan, Mahone, Miller of California, Miller of New York, Mitchell, Morrell, Palmer, Platt, Plumb, Riddleberger, Sawyer, Sewell, Voorhees, Wilson—31.

Absent.—Anthony, Bowen, Butler, Call, Cameron of Pennsylvania, Cockrell, Edmunds, Fair, Garland, George, Gibson, Harris, Harrison, Ingalls, Jonas, Jones of Florida, Kenna, Lapham, Manderson, Pike, Sabin, Saulsbury, Sherman, Van Wyck, Walker—25.

May 8, the Senate having completed its own measure, indefinitely postponed it and took up the House bill. The first thirteen sections of this measure were adopted as identical with the first thirteen sections of the Senate bill, and for the rest the Senate substituted the remaining sections of its own measure, several of which were also in the House bill. The chief point of difference was that the free-ship section was stricken out. The usual disagreement and conference followed, and June 21st the conference committee reported, each side conceding certain points at issue. The report of the committee was concurred in by both Houses without a division, and the bill was approved by the President and returned June 28. It is as follows:

Be it enacted, etc., That the last clause of section 4131 of the Revised Statutes be amended so as to read as follows:

"All the officers of vessels of the United States shall be citizens of the United States, except that in cases where, on a foreign voyage, or on a voyage from an

Atlantic to a Pacific port of the United States, any such vessel is for any reason deprived of the services of an officer below the grade of master, his place, or a vacancy caused by the promotion of another officer to such place, may be supplied by a person not a citizen of the United States until the first return of such vessel to its home port; and such vessel shall not be liable to any penalty or penal tax for such employment of an alien officer."

SECTION 2. That section 4580 of the Revised Statutes be amended so as to read as follows:

"SEC. 4580. Upon the application of the master of any vessel to a consular officer to discharge a seaman, or upon the application of any seaman for his own discharge, if it appears to such officer that such seaman has completed his shipping agreement, or is entitled to his discharge under any act of Congress or according to the general principles or usages of maritime law as recognized in the United States, such officer shall discharge said seaman, and require from the master of said vessel, before such discharge shall be made, payment of the wages which may then be due said seaman; but no payment of extra wages shall be required by any consular officer upon such discharge of any seaman except as provided in this act."

SEC. 3. That section 4583 of the Revised Statutes be amended so as to read as follows:

"SEC. 4583. Whenever on the discharge of a seaman in a foreign country, on his complaint that the voyage is continued contrary to agreement, the consular officer shall be satisfied that such voyage has been designedly and unnecessarily prolonged in violation of the articles of shipment, or whenever a seaman is discharged by a consular officer in consequence of any hurt or injury received in the service of the vessel, such consular officer shall require the payment by the master of one month's wages for such seaman over and above the wages due at the time of discharge."

SEC. 4. That section 4561 of the Revised Statutes be amended so as to read as follows:

"SEC. 4561. The inspectors in their report shall also state whether, in their opinion, the vessel was sent to sea unsuitably provided in any important or essential particular, by neglect or design, or through mistake or accident; and in case it was by neglect or design, and the consular officer approves of such finding, he shall discharge such of the crew as request it, and shall require the payment by the master of one month's wages for each seaman over and above the wages then due. But if, in the opinton of the inspectors, the defects or deficiencies found to exist have been the result of mistake or accident, and could not, in the exercise of ordinary care, have been known and provided against before the sailing of the vessel, and the master shall, in a reasonable time, remove or remedy the causes of complaint, then the crew shall remain and discharge their duty."

SEC. 5. That section 4582 of the Revised Statutes be amended so as to read as follows:

"SEC. 4582. Whenever a vessel of the United States is sold in a foreign country, and her company discharged, it shall be the duty of the master to produce to the consular officer the certified list of his ship's company, and also the shipping articles, and to pay to said consular officer for every seaman so discharged one month's wages over and above the wages which may then be due to such seaman; but in case the master of the vessel so sold shall with the assent of said seaman provide him with adequate employment on board some other vessel bound to the port at which he was originally shipped, or to such other port as may be agreed upon by him, then no payment of extra wages shall be required."

SEC. 6. That section 4600 of the Revised Statutes be amended so as to read as follows:

"SEC. 4600. It shall be the duty of consular officers to reclaim deserters and discountenance insubordination by every means within their power, and where the local authorities can be usefully employed for that purpose, to lend their aid and use their exertions to that end in the most effectual manner. In all cases where deserters are apprehended the consular officer shall inquire into the facts; and if he is satisfied that the desertion was caused by unusual or cruel treatment, he shall discharge the seaman, and require the master of the vessel from which such seaman is discharged to pay one month's wages over and above the wages then due; and the officer discharging such seaman shall enter upon the crew-list and shipping-articles the cause of discharge, and the particulars in which the cruelty or unusual treatment consisted, and the facts as to his discharge or re-engagement, as the case may be, and subscribe his name thereto officially."

SEC. 7. That section 4581 of the Revised Statutes be amended so as to read as follows:

"SEC. 4581. If any consular officer, when discharging any seaman, shall neglect to require the payment of and collect the arrears of wages and extra wages required to be paid in the case of the discharge of any seaman, he shall be accountable to the United States to the full amount thereof; and if any seaman after his discharge shall have incurred any expense for board or other necessaries at the place of his discharge, before shipping again, or for transportation to the United States, such expense shall be paid out of the arrears of wages and extra wages received by the consular officer which shall be retained for that purpose, and the balance only paid over to such seaman."

SEC. 8. That section 4584 of the Revised Statutes be hereby repealed.

SEC. 9. That section 4578 of the Revised Statutes be amended so as to read as follows:

"SEC. 4578. All masters of vessels of the United States, and bound to some port of the same, are required to take such destitute seamen on board their vessels, at the request of consular officers, and to transport them to the port in the United States to which such vessel may be bound, on such terms, not exceeding ten dollars for each person for voyages of not more than thirty days, and not exceeding twenty dollars for each person for longer voyages, as may be agreed between the master and the consular officer; and said consular officer shall issue certificates for such transportation, which certificates shall be assignable; but if any such destitute seaman is so disabled or ill as to be unable to perform duty, the consular officer shall so certify in the certificate of transportation, and such additional compensation shall be paid as the First Comptroller of the Treasury shall deem proper. Every such master who refuses to receive and transport such seaman on the request or order of such consular officer shall be liable to the United States in a penalty of one hundred dollars for each seaman so refused. The certificate of any such consular officer, given under his hand and official seal, shall be presumptive evidence of such refusal in any court of law having jurisdiction for the recovery of the penalty. No master of any vessel shall, however, be obliged to take a greater number than one man to every one hundred tons burden of the vessel on any one voyage."

SEC. 10. That it shall be and is hereby made unlawful in any case, to pay before leaving the port at which such seaman may be engaged, to any seaman wages in advance of the time when he has actually earned the same, or to pay such advance wages to any other person, or to pay any person, other than an officer authorized by act of Congress to collect fees for such service, any remuneration for the shipment of seamen. Any person paying such advance wages or such remuneration shall be deemed guilty of a misdemeanor, and, upon conviction, shall be punished by a fine not less than four times the amount of the wages so advanced or remuneration so paid, and may be also imprisoned for a period not exceeding six months, at the discretion of the court. The payment of such advance wages or remuneration shall in no case as herein provided absolve the vessel, or the master or owner thereof, from full payment of wages after the same shall have been actually earned, and shall be no defense to a libel suit, or action for the recovery of such wages: *Provided*, That this section shall not apply to whaling-vessels: *And provided further*, That it shall be lawful for any seaman to stipulate in his shipping agreement for an allotment of any portion of the wages which he may earn to his wife, mother, or other relative, but to no other person or corporation. And any person who shall falsely claim such relationship to any seaman in order to obtain wages so allotted shall, for every such offense, be punishable by a fine of not exceeding five hundred dollars or imprisonment not exceeding six months, at the discretion of the court. This section shall apply as well to foreign vessels as to vessels of the United States; and any foreign vessel the master, owner, consignee or agent of which has violated this section, or induced or connived at its violation, shall be refused a clearance from any port of the United States.

SEC. 11. That every vessel mentioned in section 4569 of the Revised Statutes shall also be provided with a slop-chest, which shall contain a complement of clothing for the intended voyage for each seaman employed, including boots or shoes, hats or caps, under-clothing and outer clothing, oiled clothing, and everything necessary for the wear of a seaman; also, a full supply of tobacco and blankets. Any of the contents of the slop-chest shall be sold, from time to time, to any or every seaman applying therefor, for his own use, at a profit not exceeding 25 per cent. of the reasonable wholesale value of the same at the port at which the voyage commenced. And if any such vessel is not provided, before sailing, as herein required, the owner shall be liable to a penalty of not more than two hundred dollars. The provisions of this section shall not apply to vessels plying between the United States and the Dominion of Canada, Newfoundland, the Bermuda Islands, the Bahama Islands, the West Indies, Mexico, and Central America.

SEC. 12. That on and after July 1, 1884, no fees named in the tariff of consular fees prescribed by order of the President, shall be charged or collected by consular officers for the official services to American vessels and seamen. Consular officers shall furnish the master of every such vessel with an itemized statement of such services performed on account of said vessel, with the fee so prescribed for each service, and make a detailed report to the Secretary of the Treasury of such services and fees under such regulations as the Secretary of State may prescribe; and the Secretary of the Treasury shall allow consular officers who are paid in whole or in part by fees such compensation for said services as they would have received prior to the passage: "*Provided*, That such services, in the opinion of the Secretary of the Treasury, have been necessarily rendered, and a sum sufficient for the payment of such compensation, when thus adjusted by the Secretary of the Treasury, is hereby appropriated out of any money in the Treasury not otherwise appropriated"; and the Senate agree to the same.

SEC. 13. That section 4213 of the Revised Statutes be amended so as to read as follows:

"SEC. 4213. It shall be the duty of all masters of vessels for whom any official services shall be performed by any consular officer without the payment of a fee to require a written statement of such services from such consular officer, and after certifying as to whether such statement is correct, to furnish it to the collector of the district in which such vessels shall first arrive on their return to the United States; and if any such master of a vessel shall fail to furnish such statement he shall be liable to a fine of not exceeding fifty dollars, unless such master shall state under oath that no such statement was furnished him by said consular officer. And it shall be the duty of every collector to forward to the Secretary of the Treasury all such statements as shall have been furnished to him, and also a statement of all certified invoices which shall come to his office, giving the dates of the certificates and the names of the persons for whom and of the consular officer by whom the same were certified."

SEC. 14. That in lieu of the tax on tonnage of thirty cents per ton per annum heretofore imposed by law, a duty of three cents per ton, not to exceed in the aggregate fifteen cents per ton in any one year, is hereby imposed at each entry on all vessels which shall be entered in any port of the United States from any foreign port or place in North America, Central America, the West India Islands, the Bahama Islands, the Bermuda Islands, or the Sandwich Islands, or Newfoundland; and a duty of six cents per ton, not to exceed thirty cents per ton per annum, is hereby imposed at each entry upon all vessels which shall be entered in the United States from any other foreign ports: *Provided*, That the President of the United States shall suspend the collection of so much of the duty herein imposed on vessels entered from any port in the Dominion of Canada, Newfoundland, the Bahama Islands, the Bermuda Islands, the West India Islands, Mexico, and Central America, down to and including Aspinwall and Panama, as may be in excess of the tonnage and lighthouse dues, or other equivalent tax or taxes, imposed on American vessels by the government of the foreign country in which such port is situated, and shall upon the passage of this act, and from time to time thereafter as often as it may become necessary by reason of change in the laws of the foreign countries above mentioned, indicate by proclamation the ports to which such suspension shall apply, and the rate or rates of tonnage duty, if any, to be collected under such suspension: *And provided further*, That all vessels which have paid the tonnage-tax imposed by section 4219 of the Revised Statutes for the current year shall not be liable to the tax herein levied until the expiration of the certificate of last payment of the said tax. And sections 4223 and 4224, and so much of section 4219 of the Revised Statutes as conflicts with this section, are hereby repealed.

SEC. 15. Sections 4585, 4586, and 4587 of the Revised Statutes, and all other acts and parts of acts providing for the assessment and collection of a hospital-tax for seamen, are hereby repealed, and the expense of maintaining the Marine-Hospital Service shall hereafter be borne by the United States out of the receipts for duties on tonnage provided for by this act, and so much thereof as may be necessary is hereby appropriated for that purpose.

SEC. 16. All articles of foreign production needed, and actually withdrawn from bonded warehouses, for supplies, not including equipment, of vessels of the United States engaged in the foreign trade, including the trade between the Atlantic and Pacific ports of the United States, may be so withdrawn free of duty, under such regulations as the Secretary of the Treasury may prescribe.

SEC. 17. When a vessel is built in the United States for foreign account, wholly or partly of foreign materials on which import duties have been paid, there shall be allowed on such vessel, when exported, a drawback equal in amount to the duty paid on such materials, to be ascertained under such regulations as may be prescribed by the Secretary of the Treasury. Ten per cent. of the amount of such drawback so allowed shall, however, be retained for the use of the United States by the collector paying the same.

SEC. 18. That the individual liability of a ship-owner shall be limited to the proportion of any or all debts and liabilities that his individual share of the vessel bears to the whole; and the aggregate liabilities of all the owners of a vessel on account of the same shall not exceed the value of such vessels and freight pending: *Provided*, That this provision shall not affect the liability of any owner incurred previous to the passage of this act, nor prevent any claimant from joining all the owners in one action; nor shall the same apply to wages due to persons employed by said ship-owners.

SEC. 19. That a master of a vessel in the foreign trade may engage a seaman at any port in the United

States, in the manner provided by law, to serve on a voyage to any port, or for the round trip from and to the port of departure, or for a definite time, whatever the destination. The master of a vessel making regular and stated trips between the United States and a foreign country may engage a seaman for one or more round trips, or for a definite time, or on the return of said vessel to the United States may reship such seaman for another voyage in the same vessel, in the manner provided by law, without the payment of additional fees to any officer for such reshipment or reengagement.

SEC. 20. That every master of a vessel in the foreign trade may engage any seaman at any port out of the United States, in the manner provided by law, to serve for one or more round trips from and to the port of departure, or for a definite time, whatever the destination; and the master of a vessel clearing from a port of the United States with one or more seamen engaged in a foreign port as herein provided shall not be required to reship in a port of the United States the seamen so engaged, or to give bond, as required by section 4576 of the Revised Statutes, to produce said seamen before a boarding officer on the return of said vessel to the United States.

SEC. 21. That the word "port" as used in sections 4178 and 4334 of the Revised Statutes, in reference to painting the name and port of every registered or licensed vessel on the stern of such vessel, shall be construed to mean either the port where the vessel is registered or enrolled, or the place in the same district where the vessel was built or where one or more of the owners reside.

SEC. 22. That until the provisions of section 1, chapter 376, of the laws of 1882, shall be made applicable to passengers coming into the United States by land-carriage, said provisions shall not apply to passengers coming by vessels employed exclusively in the trade between the ports of the United States and the ports of the Dominion of Canada or the ports of Mexico.

SEC. 23. That sections 3976 and 4203 of the Revised Statutes of the United States, and all other compulsory laws and parts of laws that oblige American vessels to carry the mails to and from the United States arbitrarily, or that prevent the clearance of vessels until they shall have taken mail matter on board, be and the same are hereby repealed; but such repeal shall not take effect until the first day of April, 1885.

SEC. 24. That section 2966 of the Revised Statutes be amended by striking out the words "propelled in whole or in part by steam," so that said section as amended shall read as follows:

"SEC. 2966. When merchandise shall be imported into any port of the United States from any foreign country in vessels, and it shall appear by the bills of lading that the merchandise so imported is to be delivered immediately after the entry of the vessel, the collector of such port may take possession of such merchandise and deposit the same in bonded warehouse; and when it does not appear by the bills of lading that the merchandise so imported is to be immediately delivered, the collector of the customs may take possession of the same and deposit it in bonded warehouse, at the request of the owner, master, or consignee of the vessel, on three days' notice to such collector after the entry of the vessel."

SEC. 25. That section 2872 of the Revised Statutes be amended by adding thereto the following:

"When the license to unload between the setting and rising of the sun is granted to a sailing-vessel under this section, a fixed, uniform, and reasonable compensation may be allowed to the inspector or inspectors for service between the setting and rising of the sun, under such regulations as the Secretary of the Treasury may prescribe, to be received by the collector from the master, owner, or consignee of the vessel, and to be paid by him to the inspector or inspectors."

SEC. 26. Whenever any fine, penalty, forfeiture, exaction, or charge arising under the laws relating to vessels or seamen has been paid to any collector of customs or consular officer, and application has been made within one year from such payment for the refunding or remission of the same, the Secretary of the Treasury, if on investigation he finds that such fine, penalty, forfeiture, exaction, or charge was illegally, improperly, or excessively imposed, shall have the power, either before or after the same has been covered into the Treasury, to refund so much of such fine, penalty, forfeiture, exaction, or charge as he may think proper, from any moneys in the Treasury not otherwise appropriated.

SEC. 27. That section 4501 of the Revised Statutes is hereby amended so as to read as follows:

"SEC. 4501. He shall appoint a commissioner for each port of entry, which is also a port of ocean navigation, and which, in his judgment, may require the same; such commissioner to be termed a shipping commissioner, and may, from time to time, remove from office any such commissioner whom he may have reason to believe does not properly perform his duty, and shall then provide for the proper performance of his duties until another person is duly appointed in his place: *Provided*, That shipping commissioners now in office shall continue to perform the duties thereof until others shall be appointed in their places. Shipping commissioners shall monthly render a full, exact, and itemized account of their receipts and expenditures to the Secretary of the Treasury, and shall determine their compensation and shall from time to time determine the number and compensation of the clerks appointed by such commissioner, with the approval of the Secretary of the Treasury, subject to the limitations now fixed by law. The Secretary of the Treasury shall regulate the mode of conducting business in the shipping offices to be established by the shipping commissioners as hereinafter provided, and shall have full and complete control over the same, subject to the provisions herein contained; and all expenditures by shipping commissioners shall be audited and adjusted in the Treasury Department, in the mode and manner provided for expenditures in the collection of customs. All fees of shipping commissioners shall be paid into the Treasury of the United States, and shall constitute a fund which shall be used, under the direction of the Secretary of the Treasury, to pay the compensation of said commissioners and their clerks, and such other expenses as he may find necessary to insure the proper administration of their duties."

SEC. 28. Before issuing any inspection certificate to any steamer, the collector or other chief officer of customs for the port or district shall demand and receive from the owners thereof, as a compensation for the inspection and examinations made for the year, the following sums, in addition to the fees for issuing enrollments and licenses now allowed by law, according to the tonnage of the vessel: For each steam-vessel of one hundred tons or under, $10; and for each and every ton in excess of one hundred tons, five cents, in lieu of the fees now provided by law.

SEC. 29. That section 2776 of the Revised Statutes is hereby amended by adding thereto the following:

"*Provided*, That vessels arriving at a port of entry in the United States laden with coal, salt, railroad-iron, and other like articles in bulk, may proceed to places within that collection district to be specially designated by the Secretary of the Treasury, by general regulations or otherwise, under the superintendence of customs officers, at the expense of the parties interested, for the purpose of unlading cargoes of the character before mentioned."

SEC. 30. All laws and parts of laws in conflict with the provisions of this act are hereby repealed; and this act shall take effect and be in force on and after July 1, 1884.

Bureau of Navigation.—April 21, 1884, the select committee on American ship-building and ship-owning interests brought forward in the House the following bill for a bureau of navigation, and the rules were suspended and the measure passed by a vote of 168 yeas to 47 nays, 107 not voting:

Be it enacted, etc., That there shall be in the Department of the Treasury of the United States a bureau of navigation, under the immediate charge of a commissioner of navigation.

Sec. 2. That the commissioner of navigation, under the direction of the Secretary of the Treasury, shall have general superintendence of the commercial marine and merchant seamen of the United States, so far as vessels and seamen are not, under existing laws, subject to the supervision of any other officer of the Government. He shall be specially charged with the decision of all questions relating to the issue of registers, enrollments, and licenses of vessels, and to the filing and preserving of those documents; and wherever in title 48 or 50 of the Revised Statutes any of the above-named documents are required to be surrendered or returned to the Register of the Treasury, such requirement is hereby repealed, and such documents shall be surrendered and returned to the commissioner of navigation. Said commissioner shall have charge of all similar documents now in the keeping of the Register of the Treasury, and shall perform all the duties hitherto devolved upon said Register relating to navigation.

Sec. 3. That the commissioner of navigation shall be charged with the supervision of the laws relating to the admeasurement of vessels, and the assigning of signal letters thereto, and of designating their official number; and on all questions of interpretation growing out of the execution of the laws relating to these subjects, and relating to the collection of tonnage-tax, and to the refunding of such tax when collected erroneously or illegally, his decision shall be final.

Sec. 4. That the commissioner of navigation shall annually prepare and publish a list of vessels of the United States belonging to the commercial marine, specifying the official number, signal letters, names, rig, tonnage, home port, and place and date of building of every vessel, distinguishing in such list sailing-vessels from such as may be propelled by steam or other motive power. He shall also report annually to the Secretary of the Treasury the increase of vessels of the United States, by building or otherwise, specifying their number, rig, and motive power. He shall also investigate the operations of the laws relative to navigation, and annually report to the Secretary of the Treasury such particulars as may, in his judgment, admit of improvement or may require amendment.

Sec. 5. That the commissioner of navigation shall, under the direction of the Secretary of the Treasury, be empowered to change the names of vessels of the United States, under such restrictions as may have been or shall be prescribed by act of Congress.

Sec. 6. That the commissioner of navigation shall be appointed by the President of the United States, by and with the advice and consent of the Senate, and shall receive a salary of $4,000 per annum. And the Secretary of the Treasury shall have power to transfer from existing bureaus or divisions of the Treasury one clerk, to be designated as deputy-commissioner of navigation, to act with the full powers of said commissioner during his temporary absence from his official duty for any cause, and such additional clerks as he may consider necessary to the successful operation of the bureau of navigation, without impairing the efficiency of the bureaus or divisions whence such clerks may be transferred.

Sec. 7. That this act shall be in force and take effect on and after July 1, 1884.

Mr. Dingley, of Maine, summarized the arguments for the bill in a brief speech. He said: "Under existing laws the supervision of the merchant marine and of all of the interests which attach to it is distributed in various bureaus and divisions and among different officials in the Treasury Department. So much of the supervision of the merchant marine as relates to the registration, the licensing, and the enrollment of vessels is by an old law, passed in 1792, in the office of the Register of the Treasury. This officer is a financial officer, and has no connection appropriately with the duties that relate to the enrollment, the licensing, and the registering of vessels. All the duties which relate to the administration of the tonnage-tax and to the admeasurement of vessels are placed, not by law, but by an order of the Treasury Department, in the so-called tonnage division. All of those matters relating to our merchant marine that affect the naming and the change of names of vessels of the merchant marine are in the Bureau of Statistics. With this divided responsibility, as stated by the Secretary of the Treasury in his last report, there is no official under our Government who feels charged with the administration and the care of the laws relating to the merchant marine of the country. The Secretary of the Treasury therefore recommends, and the committee are united in approving the recommendation, that there be established in the Treasury Department a bureau similar in many respects to the British Board of Trade which has charge of the British merchant marine, with a head who shall be amply fitted by experience and by ability to direct affairs relating to our merchant marine, to suggest to Congress needed amendments of all antiquated shipping laws, and in general to take that charge of the merchant marine of this country that the President of the British Board of Trade takes of the British merchant marine."

The bill passed the Senate July 4, and was approved by the President July 5, 1884.

The Tariff Bill.—No measure proposed during the session occupied so much of public attention, or was considered of so much political significance, as the bill "to reduce import duties and war taxes," reported by Mr. Morrison, of Illinois, from the Ways and Means Committee of the House, March 11. It was as follows:

Be it enacted, etc., That on and after the first day of July, eighteen hundred and eighty-four, in lieu of duties and rates of duty imposed by law on the importation of goods, wares, and merchandise mentioned in the several schedules of "An act to reduce internal revenue taxation and for other purposes," approved March third, eighteen hundred and eighty-three, and hereinafter enumerated, there shall be levied, collected, and paid the following rates of duty upon said articles severally, that is to say:

On all articles mentioned in Schedule I, cotton and cotton goods, eighty per centum of the several duties and rates of duty now imposed on said articles severally; and none of the above cotton goods shall pay a higher rate of duty than forty per centum ad valorem.

On all the articles mentioned in Schedule J, hemp, jute, and flax goods, eighty per centum of the several duties and rates of duty now imposed on said articles severally.

On all the articles mentioned in Schedule K, wool and woolens, eighty per centum of the several duties and rates of duty now imposed on said articles severally; and none of the above wools and woolens shall pay a higher rate of duty than sixty per centum ad valorem.

On all the articles mentioned in Schedule C, metals, eighty per centum of the several duties and rates of duty now imposed on said articles severally; and none of the articles mentioned in said Schedule C, metals, shall pay a higher rate of duty than fifty per centum ad valorem.

On all the articles mentioned in Schedule M, books, papers, etc., eighty per centum of the several duties and rates of duty now imposed on said articles severally.

On all the articles mentioned in Schedule E, sugar, eighty per centum of the several duties and rates of duty now imposed on said articles severally.

On all the articles mentioned in Schedule F, tobacco, eighty per centum of the several duties and rates of duty now imposed on said articles severally.

On all the articles mentioned in Schedule D, wood and wooden-ware, except as hereinafter provided, eighty per centum of the several duties and rates of duty now imposed on said articles severally.

On cast, polished plate-glass, unsilvered, exceeding twenty-four by sixty inches square; on green and colored glass bottles, vials, demijohns, and carboys (covered or uncovered), pickle- or preserve-jars, and other plain, molded, or pressed, green and colored bottle-glass, not cut, engraved, or painted, and not specially enumerated or provided for in this act, and on all the articles subject to ad valorem duty in Schedule B, earthenware and glassware, eighty per centum of the several duties and rates of duty now imposed on said articles severally.

On all the articles mentioned in Schedule G, provisions, eighty per centum of the several duties and rates of duty now imposed on said articles severally.

On all the articles mentioned in Schedule N, sundries, other than precious stones, salt, coal, and linseed or flaxseed, eighty per centum of the several duties and rates of duty now imposed on said articles severally.

On all the articles mentioned in Schedule A, chemical products, eighty per centum of the several duties and rates of duty now imposed on said articles severally: *Provided*, That nothing in this act shall operate to reduce the duty above imposed on any article below the rate at which said article was dutiable under "An act to provide for the payment of outstanding Treasury notes, to authorize a loan, to regulate and fix the duties on imports, and for other purposes," approved March second, eighteen hundred and sixty-one, commonly called the Morrill tariff. And when under existing law any of said articles are grouped together and made dutiable at one rate, then nothing in this act shall operate to reduce the duty below the highest rate at which any article in such group was dutiable under said act of March second, eighteen hundred and sixty-one.

SEC. 2. That on and after the first day of July, eighteen hundred and eighty-four, in lieu of the duties heretofore imposed on the goods, wares, and merchandise hereinafter in this section specified, there shall be levied, collected, and paid, the following rates of duty upon said articles severally; that is to say: on all unpolished cylinder, crown, and common window-glass; on iron or steel sheets or plates, or taggers' iron coated with tin or lead, or with mixtures of which these metals are a component part, by dipping or any other process, and commercially known as tin-plates, terne-plates, and taggers' tin; and on linseed or flaxseed, eighty per centum of the several duties and rates of duty now imposed on said articles severally.

SEC. 3. That on and after the first day of July, eighteen hundred and eighty-four, in addition to the articles now exempt from duty, the articles enumerated and described in this section, when imported, shall be exempt from duty, that is to say:

Salt in bags, sacks, barrels, or other packages, or in bulk.

Coal, slack or culm.

Coal, bituminous or shale.

Provided, That this shall not apply to coal imported from the Dominion of Canada until that Government shall have exempted from the payment of duty all coal imported into that country from the United States.

Timber, hewed and sawed, and timber used for spars and in building wharves.

Timber, squared or sided, not specially enumerated and provided for in this act.

Sawed boards, planks, deals, and other lumber of hemlock, whitewood, sycamore and basswood, and all other articles of sawed lumber.

Hubs for wheels, posts, last-blocks, wagon-blocks, ore-blocks, gun-blocks, heading-blocks, and all like blocks or sticks, rough hewed or sawed only.

Staves of wood of all kinds.

Pickets and palings.

Laths.

Shingles.

Pine clapboards.

Spruce clapboards.

Wood unmanufactured, not specially enumerated or provided for in this act.

The first test of the strength of the measure came April 15, when Mr. Morrison moved that the House proceed to consider the bill in Committee of the Whole, and Messrs. Eaton, of Connecticut, and Kelley, of Pennsylvania, objected. The House decided to consider the bill by the following vote:

YEAS—J. J. Adams, Aiken, Alexander, Anderson, Bagley, Ballentine, Barksdale, Beach, Belmont, Bennett, Blackburn, Blanchard, Bland, Blount, Breckinridge, Buchanan, Buckner, Cabell, Caldwell, Candler, Carleton, Cassidy, Clardy, Clay, Cobb, Collins, Cosgrove, S. S. Cox, W. R. Cox, Crisp, D. B. Culberson, Davidson, L. H. Davis, Deuster, Dibble, Dibrell, Dockery, Dorsheimer, Dowd, Dunn, Eldredge, Ellis, J. H. Evins, Forney, Garrison, Geddes, Graves, Green, Greenleaf, Halsell, Hammond, Hancock, Hardeman, W. H. Hatch, Hemphill, Herbert, A. S. Hewitt, Hoblitzell, Holman, Houseman, Hurd, James, B. W. Jones, J. H. Jones, J. K. Jones, J. T. Jones, Jordan, King, Kleiner, Lanham, Le Fevre, Lore, Lovering, McMillin, Matson, Maybury, J. F. Miller, Mills, Mitchell, Money, Morgan, Morrison, Morse, Muldrow, Murphy, Murray, Neece, Nelson, Oates, J. J. O'Neill, Pierce, S. W. Peel, Potter, Pryor, Pusey, Reese, Riggs, Robertson, J. H. Rogers, Rosecrans, Scales, Seney, Seymour, Shaw, Singleton, T. G. Skinner, Slocum, Snyder, Springer, Charles Stewart, Stockslager, Strait, D. H. Sumner, Talbott, J. M. Taylor, Thompson, Throckmorton, Tillman, Townshend, Tucker, H. G. Turner, Oscar Turner, Vance, Van Eaton, Wakefield, Ward, Richard Warner, Wellborn, Weller, Williams, Willis, W. L. Wilson, E. B. Winans, John Winans, Wolford, Wood, Woodward, Worthington, Yaple, Young—140.

NAYS—G. E. Adams, Arnot, Atkinson, Barbour, Barr, Belford, Bingham, Bisbee, Boutelle, Boyle, Brainerd, Breitung, J. H. Brewer, W. W. Brown, Budd, Burleigh, Cannon, Chace, Converse, Curtin, Cutcheon, R. T. Davis, Dingley, Duncan, Dunham, Eaton, Elliott, Ellwood, Ermentrout, I. N. Evans, Everhart, Ferrell, Fiedler, Findlay, Finerty, Foran, Funston, George, Glascock, Goff, Guenther, Hanback, Hardy, Harmer, Hart, H. H. Hatch, Haynes, D. B. Henderson, T. J. Henderson, Henley, Hepburn, G. W. Hewitt, Hiscock, Hitt, Holmes, Hopkins, Horr, Howey, Hunt, Jeffords, Johnson, Kasson, Kean, Keifer, Kelley, Kellogg, Ketcham, Lacey, Lamb, Lawrence, Libbey, Long, Lyman, McAdoo, McCoid, McComas, McKinley, Millard, S. H. Miller, Milliken, Morey, Morrill, Muller, Mutchler, Nutting, Ochiltree, O'Hara, Charles O'Neill, Paige, Parker, Patton, Payne, Payson, S. J. Peelle, Perkins, Peters, Phelps, Poland, Post, Price, Randall, Ranney, G. W. Ray, Ossian Ray, Reed, Rice, W. E. Robinson, Rockwell, Rowell, Russell, Ryan, C. R. Skinner, Smith, Spooner, Spriggs, Steele, Stevens, J. W. Stewart, Stone, Storm, Struble, E. B. Taylor, J. D. Taylor, Tully, Valentine, Van Alstyne, Wadsworth, A. J. Warner, Washburn, Weaver, Wemple, J. D. White, Whiting, Wilkins, James Wilson, G. D. Wise, J. S. Wise, York—138.

NOT VOTING—Bayne. Bowen, F. B. Brewer, Broadhead, T. M. Browne, Brumm, Burnes, Calkins, Felix Campbell, J. M. Campbell, Clements, Connolly, Cook, Covington, W. W. Culbertson, Cullen, Dargan, G. R. Davis, Follett, Fyan, Gibson, Hill, Holton, Hooper, Houk, Hutchins, Laird, Lewis, Lowry, McCormick, Moulton, Nicholls, Pettibone, Rankin, Reagan, J. S. Robinson, W. F. Rogers, Shelley, Smalls, Stephenson, C. A. Sumner, Thomas, Wait, Milo White —44.

After so narrow an escape, there was but little prospect for the passage of the bill, yet the measure was debated in the House at great length; and many members delivered carefully prepared speeches for and against a protective policy, and presented curious and elaborate tables in regard to the effect of a protective tariff upon rates of wages, and upon the growth of our industrial interests. There was nothing new put forward touching the general principles involved, though the records of the debate may serve as an arsenal of illustrations should the tariff issue become a subject of general political discussion. General debate in the Committee of the Whole closed May 6th, and on the motion of Mr. Converse, of Ohio, it was ordered, by a vote of 156 yeas to 151 nays, that the enacting clause be stricken out of the bill. When the House was called upon to approve or reject the action of the committee, the yeas were 159 and the nays 155, and the measure was killed by the following vote:

YEAS—G. E. Adams, Anderson, Arnot, Atkinson, Bayne, Belford, Bingham, Bisbee, Boutelle, Bowen, Boyle, Brainerd, Breitung, F. B. Brewer, J. H. Brewer, T. M. Browne, W. W. Brown, Brumm, Budd, Burleigh, Calkins, J. M. Campbell, Cannon, Chace, Connolly, Converse, W. W. Culbertson, Cullen, Curtin, Cutcheon, G. R. Davis, R. T. Davis, Dingley, Duncan, Dunham, Eaton, Elliott, Ellwood, Ermentrout, I. N. Evans, Everhart, Ferrell, Fiedler, Findlay, Finerty, Foran, Funston, Geddes, George, Glascock, Goff, Guenther, Hanback, Harmer, Hart, H. H. Hatch, Haynes, D. B. Henderson, T. J. Henderson, Hepburn, Hiscock, Hitt, Holmes, Holton, Hooper, Hopkins, Horr, Houk, Howey. Hunt, Hutchins, James, Jeffords, Johnson, Jordan, Kasson, Kean, Keifer, Kelley, Kellogg, Ketcham, Lacey, Laird, Lawrence, Le Fevre, Libbey, Long, Lyman, McAdoo, McCoid, McComas, McCormick, McKinley, Millard, S. H. Miller, Milliken, Morey, Morrill, Muller, Murray, Mutchler, Nutting, O'Hara, Charles O'Neill, Paige, Parker, Patton, Payne, Payson, S. J. Peelle, Perkins, Peters, Pettibone, Phelps, Poland, Post, Price, Randall, Ranney, G. W. Ray, Ossian Ray, Reed, Rice, J. S. Robinson, Rockwell, Rowell, Russell, Ryan, Seney, C. R. Skinner, Smalls, Smith, Snyder, Spooner, Spriggs, Steele, Stephenson, J. W. Stewart, Stone, Storm, Struble, C. A. Sumner, E. B. Taylor, J. D. Taylor, Thomas, Tully, Van Alstyne, Wadsworth, Wait, A. J. Warner, Washburn, Weaver, Wemple, Whiting, Wilkins, James Wilson, G. D. Wise, J. S. Wise, York—159.

NAYS—J. J. Adams, Aiken, Alexander, Bagley, Ballentine, Barbour, Barksdale, Beach, Belmont, Blackburn, Blanchard, Bland, Blount, Breckinridge, Broadhead, Buchanan, Buckner, Burnes, Cabell, Caldwell, Felix Campbell, Candler, Carleton, Cassidy, Clardy, Clay, Clements, Cobb, Collins, Cook, Cosgrove, Covington, S. S. Cox, W. R. Cox, Crisp, D. B. Culberson, Dargan, Davidson, L. H. Davis, Deuster, Dibble, Dibrell, Dockery, Dorsheimer, Dowd, Dunn, Eldredge, Ellis, J. H. Evins, Follett, Forney, Fyan, Garrison, Gibson, Graves, Green, Greenleaf, Halsell, Hammond, Hancock, Hardeman, Hardy, W. H. Hatch, Hemphill, Henley, Herbert, A. S. Hewitt, G. W. Hewitt, Hill, Hoblitzell, Holman, Houseman, Hurd, B. W. Jones, J. H. Jones, J. K. Jones, J. T. Jones, King, Kleiner, Lamb, Lanham, Lewis, Lore, Lovering, Lowry, McMillin, Matson, Maybury, J. F. Miller, Mills, Mitchell, Money, Morgan, Morrison, Morse, Moulton, Murphy, Neece, Nelson, Oates, O'Ferrall, J. J. O'Neill, Pierce, S. W. Peel, Potter, Pryor, Pusey, Rankin, Reagan, Reese, Robertson, J. H. Rogers, W. F. Rogers, Rosecrans, Scales, Seymour, Shaw, Shelley, Singleton, T. G. Skinner, Slocum, Springer, Stevens, Charles Stewart, Stockslager, Strait, D. H. Sumner, Talbott, J. M. Taylor, Thompson, Throckmorton, Tillman, Townshend, Tucker, H. G. Turner, Oscar Turner, Vance, Van Eaton, Wakefield, Ward, Richard Warner, Wellborn, Weller, Milo White, Williams, Willis; W. L. Wilson, E. B. Winans, John Winans, Wolford, Woodward, Worthington, Yaple, Young, John G. Carlisle —155.

NOT VOTING—Barr, Bennett, Muldrow, Nicholls, Ochiltree, Riggs, W. E. Robinson, Valentine, J. D. White, Wood—10.

Forty-one Democrats voted to defeat the measure, and four Republicans voted to sustain it.

Fitz-John Porter's Case.—Jan. 18, 1884, Mr. Slocum, of New York, brought up the following bill for the relief of Fitz-John Porter, reported by the House Committee on Military Affairs:

Whereas, The board of army officers convened by the President of the United States by special orders No. 78, headquarters of the Army, April 12, 1878, to examine into and report upon the case of Fitz-John Porter, late a major-general of the United States Volunteers and a brevet brigadier-general and colonel of the Army, having by their report of March 19, 1879, stated that in their opinion "justice requires at his (the President's) hands such action as may be necessary to annul and set aside the findings and sentence of the court-martial in the case of Maj.-Gen. Fitz-John Porter, and to restore him to the positions of which the sentence deprived him, such restoration to take effect from the date of dismissal from the service"; and

Whereas, The President, on the 4th day of May, 1882, remitted so much of the sentence of said court-martial remaining unexecuted as "forever disqualified the said Fitz-John Porter from holding any office of trust or profit under the Government of the United States": Therefore, that justice may be done the said Fitz-John Porter, and to carry into effect the recommendation of said board,

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the President be and he is hereby authorized to nominate and, by and with the advice and consent of the Senate, to appoint Fitz-John Porter, late a major-general of the United States Volunteers and a brevet brigadier-general and colonel of the Army, to the position of colonel in the Army of the United States, of the same grade and rank, together with all the rights, titles, and privileges held by him at the time of his dismissal from the Army by sentence of court-martial promulgated Jan. 27, 1863, and, in his discretion, to place him on the retired list of the Army as of that grade, the retired list being thereby increased in number to that extent; and all laws and parts of laws in conflict herewith are suspended for this purpose only; but this act shall not be construed as authorizing pay, compensation, or allowance prior to appointment under it.

The usual acrimonious debate followed. Perhaps the most interesting thing in the discussion in the House was the illustration drawn from the career of Gen. Sherman by Mr. Slocum, who had charge of the bill. Alluding to the love of the soldiers of the Fifth Corps for Porter, and the ability of soldiers to estimate the character of a general, he said of the closing incidents of Sherman's most celebrated campaign:

"On the day after we left Raleigh on the march toward Richmond, large packages of New York papers were brought to our camps for sale. Without orders from their officers, the soldiers speedily suppressed and destroyed them. An intelligent soldier of my command explained the acts of his associates. He said:

> These papers are teeming with abuse of Gen. Sherman, charging him with insubordination, a violation of his orders, and some of them even insinuating that he is disloyal—all on account of his treaty with Gen. Johnston. We do not intend to have these slanders against the man we have followed so many hundreds of miles circulated among the boys.

"I felt that these men better appreciated the merits of their commander than did some of the authorities in Washington. Just before we arrived at Richmond, another batch of New York papers came to our camps, announcing that a new department had been created—the Department of the James; that Gen. Halleck had been assigned to the command, and ordered Generals Meade, Sheridan, and Wright to invade that part of North Carolina occupied by Sherman, and disregard his truce with Gen. Johnston, and pay no attention to his (Sherman's) orders. In my presence Sherman declared that, if an attempt had been made to execute that order, he would have defended his truce if it had cost the lives of half his command. I was with him when he received a note from Gen. Halleck, asking to be allowed to review the army as it passed through the streets of Richmond, and I saw him write a reply, saying that, so far from giving him a review, he deemed it his duty to say that it would be unsafe for Gen. Halleck to be seen in the streets.

"I stood beside Gen. Sherman on the grand stand at the other end of this avenue when the armies of the Union, in the presence of all the chief civil officers of the Government and the representatives of all foreign countries with whom we have diplomatic relations, were being reviewed; and I saw Gen. Sherman, in the face of this vast concourse, refuse the proffered hand of the officer of the Government who, in the closing days of brilliant services in the field, had brought so much undeserved reproach on him; and I honored him for it. A most cruel and defenseless attempt had been made to rob him of his hard-earned reputation.

"But it may be said, Why revert to these painful events, now that some of the chief actors in them are in their graves? I have a purpose in it. First, I wish to make it apparent to every member of this House that in the heat and excitement of a civil war the purest and ablest officer is liable to be stricken down without cause.

"At the close of the war one wing of Sherman's army was commanded by Gen. Logan and the other by myself. I wish to remind the old soldiers of that army that the very weapons used to strike down Porter were wielded by the same hands against Sherman; and it is my firm conviction that had not the war been brought to a successful close immediately after Sherman's treaty with Johnston, an attempt would have been made to place his name side by side with that of Fitz-John Porter, and instead of commanding the army eighteen years after the war, and then retiring with the love and admiration of a grateful people, he might to-day have been vainly pleading at the doors of Congress for a rehearing of his case, pleading his previous good character, his great services to his country, and the heat and passion of the hour when the cruel verdict was rendered against him, precisely as Porter is now doing."

The measure passed the House February 1, by the following vote:

YEAS—J. J. Adams, Alexander, Arnot, Bagley, Ballentine, Barbour, Bayne, Beach, Belmont, Bennett, Blanchard, Bland, Blount, Boyle, Breckinridge, Broadhead, Buchanan, Buckner, Burleigh, Cabell, Caldwell, Candler, Carleton, Cassidy, Clardy, Clay, Clements, Cobb, Collins, Connolly, Cook, Gosgrove, S. S. Cox, W. R. Cox, Crisp, D. B. Culberson, Curtin, Dargan, Davidson, L. H. Davis, Deuster, Dibrell, Dockery, Dorsheimer, Dowd, Duncan, Eldredge, J. H. Evins, Ferrell, Fiedler, Findlay, Finerty, Follett, Foran, Forney, Fyan, Gibson, Glascock, Graves, Green, Greenleaf, Halsell, Harmer, W. H. Hatch, Haynes, Hemphill, Henley, Herbert, A. S. Hewitt, G. W. Hewitt, Hill, Holman, Hopkins, Houseman, Hunt, Hurd, Hutchins, James, Jeffords, B. W. Jones, J. K. Jones, J. T. Jones, Jordan, Kean, King, Kleiner, Laird, Lamb, Lanham, Le Fevre, Lewis, Long, Lore, Lovering, Lowry, Lyman, McAdoo, McMillin, Matson, Maybury, J. F. Miller, Mitchell, Morgan, Morrison, Morse, Moulton, Muldrow, Murphy, Murray, Mutchler, Neece, Nicholls, Oates, O'Hara, J. J. O'Neill, Patton, Pierce, S. W. Peel, Phelps, Poland, Post, Potter, Pryor, Pusey, Rankin, Ranney, Ossian Ray, Reagan, Reese, Riggs, Robertson, W. E. Robinson, Rockwell, J. H. Rogers, W. F. Rogers, Rosecrans, Scales, Seney, Seymour, Shaw, Singleton, T. G. Skinner, Slocum, Smith, Snyder, Spriggs, Springer, Stevens, Charles Stewart, J. W. Stewart, Stockslager, Storm, C. A. Sumner, D. H. Sumner, J. M. Taylor, Thompson, Throckmorton, Tillman, Townshend, Tucker, Tully, H. G. Turner, Oscar Turner, Van Alstyne, Vance, Van Eaton, Ward, Richard Warner, Wellborn, Weller, Wemple, Wilkins, Williams, Willis, W. L. Wilson, E. B. Winans, G. D. Wise, Wolford, Wood, Woodward, Worthington, Yaple, York, Young—184.

NAYS—G. E. Adams, Anderson, Atkinson, Barr, Bingham, Boutelle, Brainerd, Breitung, F. B. Brewer, J. H. Brewer, T. M. Browne, Brumm, Calkins, J. M. Campbell, Cannon, Converse, W. W. Culbertson, Cullen, Cutcheon, G. R. Davis, R. T. Davis, Dingley, Dunham, Ellwood, I. N. Evans, Goff, Guenther, Hanback, Hart, H. H. Hatch, T. J. Henderson, Hepburn, Hiscock, Holmes, Hooper, Horr, Houk, Johnson, Keifer, Lacey, Lawrence, McCoid, McCormick, McKinley, Milliken, Morey, Morrill, Nelson, Nutting, Parker, Payne, Payson, S. J. Peelle, Perkins, Peters, Pettibone, Price, Reed, J. S. Robinson, Rowell, Russell, Ryan, C. R. Skinner, Spooner, Steele, Stephenson, Stone, Strait, Struble, E. B. Taylor, J. D. Taylor, Thomas, Wadsworth, Wakefield, Washburn, Weaver, Milo White, Whiting—77.

NOT VOTING—Aiken, Barksdale, Belford, Bisbee, Blackburn, Bowen, W. W. Browne, Budd, Burnes, Felix Campbell, Chace, Covington, Dibble, Dunn, Eaton, Elliott, Ellis, Ermentrout, Everhart, Geddes, George, Hammond, Hancock, Hardeman, Hardy, D. B. Henderson, Hitt, Hoblitzell, Holton, Howey, J. H. Jones, Kasson, Kelley, Kellogg, Ketcham, Libbey, McComas, Mayo, Millard, S. H. Miller, Mills, Money, Muller, Ochiltree, Charles O'Neill, Paige, Randall, G. W. Ray, Rice, Shelley, Talbott, Valentine, Wait, A. J. Warner, J. D. White, James Wilson, John Winans, J. S. Wise—58.

In the Senate, the Committee on Military Affairs reported the following substitute for the House bill, February 26:

That the President be and he is hereby authorized to nominate and, by and with the advice and consent of the Senate, to appoint Fitz-John Porter, late a major-general of the United States Volunteers and a brevet brigadier-general and colonel of the Army, to the position of colonel in the Army of the United States, of the same grade and rank held by him at the time of his dismissal from the Army by sentence of court-martial promulgated Jan. 27, 1863, and, in his discretion, to place him on the retired list of the Army as of that grade, the retired list being thereby increased in number to that extent; and all laws and parts of laws in conflict herewith are suspended for this purpose only: *Provided*, That said Fitz-John Porter shall receive no pay, compensation, or allowance whatsoever prior to his appointment under this act.

The measure was debated March 12 and 13, and passed by the following vote:

YEAS—Bayard, Brown, Butler, Call, Cockrell, Coke, Colquitt, Fair, Farley, Garland, Gibson, Gorman, Groome, Hampton, Harris, Hoar, Jackson, Jonas, Jones of Florida, Jones of Nevada, Lamar, McPherson, Maxey, Morgan, Pendleton, Pike, Pugh, Riddleberger, Sabin, Saulsbury, Sewell, Slater, Vance, Voorhees, Walker, Williams—36.

NAYS—Aldrich, Allison, Blair, Bowen, Conger, Cullom, Dawes, Dolph, Edmunds, Frye, Harrison, Hawley, Hill, Ingalls, Logan, McMillan, Manderson, Miller of California, Mitchell, Morrill, Palmer, Platt, Sherman, Van Wyck, Wilson—25.

ABSENT—Anthony, Beck, Camden, Cameron of Pennsylvania, Cameron of Wisconsin, George, Hale, Kenna, Lapham, Mahone, Miller of New York, Plumb, Ransom, Sawyer, Vest—15.

The Senate also adopted the preamble to the House bill. March 7, the House non-concurred in the Senate amendments; and, June 18, a conference committee reported in favor of receding from the non-concurrence, and agreeing to the measure as passed. This was done, and the bill went to the President, who returned it, July 2, with this veto message:

To the House of Representatives:

After careful consideration of the bill entitled "An act for the relief of Fitz-John Porter," I herewith return it with my objections to that house of Congress in which it originated. Its enacting clause is in terms following: "That the President be and he is hereby authorized to nominate and, by and with the advice and consent of the Senate, to appoint Fitz-John Porter, late a major-general of the United States Volunteers, and a brevet brigadier-general and colonel of the Army, to the position of colonel in the Army of the United States, of the same grade and rank held by him at the time of his dismissal from the Army by sentence of court-martial, promulgated January 27, 1863," etc.

It is apparent that should this bill become a law it will create a new office, which can be filled by the appointment of the particular individual whom it specifies, and can not be filled otherwise; or it may be said with perhaps greater precision of statement that it will create a new office upon condition that the particular person designated shall be chosen to fill it. Such an act, as it seems to me, is either unnecessary and ineffective, or it involves an encroachment by the legislative branch of the Government upon the authority of the Executive. As the Congress has no power under the Constitution to nominate or appoint an officer, and can not lawfully impose upon the President the duty of nominating or appointing to office any particular individual of its own selection, this bill, if it can fairly be construed as requiring the President to make the nomination and, by and with the advice and consent of the Senate, the appointment which it authorizes, is in manifest violation of the Constitution. If such be not its just interpretation, it must be regarded as a mere enactment of advice and counsel, which lacks in the very nature of things the force of positive law, and can serve no useful purpose upon the statute-books.

There are other causes that deter me from giving this bill the sanction of my approval. The judgment of the court-martial by which more than twenty years since General Fitz-John Porter was tried and convicted was pronounced by a tribunal composed of nine general officers of distinguished character and ability. Its investigation of the charges of which it found the accused guilty was thorough and conscientious, and its findings and sentence were in due course of law approved by Abraham Lincoln, then President of the United States. Its legal competency, its jurisdiction of the accused and of the subject of the accusation, and the substantial regularity of all of its proceedings, are matters which have never been brought in question. Its judgment, therefore, is final and conclusive in its character.

The Supreme Court of the United States has recently declared that a court-martial such as this was, is the organism provided by law and clothed with the duty of administering justice in this class of cases. Its judgments, when approved, rest on the same basis, and are surrounded by the same considerations which give conclusiveness to the judgments of other legal tribunals, including as well the lowest as the highest. It follows, accordingly, that when a lawfully constituted court-martial has duly declared its findings and its sentence, and the same have been duly approved, neither the President nor the Congress has any power to set them aside. The existence of such power is not openly asserted, nor perhaps is it necessarily implied, in the provisions of the bill which is before me, but, when its enacting clauses are read in the light of the recitations of its preamble, it will be seen that it seeks in effect the practical annulment of the findings and the sentence of a competent court-martial.

A conclusion at variance with these findings has been reached, after investigation by a board consisting of three officers of the Army. This board was not created in pursuance of any statutory authority, and was powerless to compel the attendance of witnesses or to pronounce a judgment which could have been lawfully enforced. The officers who constituted it, in their report to the Secretary of War, dated March 19, 1879, state that in their opinion "justice requires . . . such action as may be necessary to annul and set aside the findings and sentence of the court-martial in the case of Major-General Fitz-John Porter, and to restore him to the positions of which that sentence deprived him, such restoration to take effect from the date of his dismissal from the service."

The provisions of the bill now under consideration are avowedly based on the assumption that the findings of the court-martial have been discovered to be erroneous. But it will be borne in mind that the investigation which is claimed to have resulted in this discovery was made many years after the events to which that evidence related, and under circumstances that made it impossible to reproduce the evidence on which they were based.

It seems to me that the proposed legislation would establish a dangerous precedent, calculated to imperil in no small measure the binding force and effect of the judgments of the various tribunals established under our Constitution and laws.

I have already, in the exercise of the pardoning power with which the President is vested by the Constitution, remitted the continuing penalty which had made it impossible for Fitz-John Porter to hold any office of trust or profit under the Government of the United States. But I am unwilling to give my sanction to any legislation which shall practically annul and set at naught the solemn and deliberate conclusions of the tribunal by which he was convicted, and of the President by whom its findings were examined and approved. CHESTER A. ARTHUR.

Executive Mansion, *July* 2, 1884.

The House, on reconsideration, passed the bill over the veto by the following vote:

Yeas—J. J. Adams, Aiken, Alexander, Arnot, Bagley, Barbour, Bayne, Belford, Belmont, Blanchard, Blount, Breckinridge, Broadhead, Buchanan, Budd, Burleigh, Burnes, Caldwell, J. E. Campbell, Candler, Carleton, Cassidy, Clay, Clements, Cobb, Cosgrove, Covington, W. R. Cox, Crisp, D. B. Culberson, Curtin, Dargan, Deuster, Dibble, Dibrell, Dorsheimer, Dowd, Dunn, Eaton, Eldredge, Elliott, Ellis, English, Ermentrout, Ferrell, Follett, Forney, Garrison, Gibson, Glascock, Graves, Greenleaf, Halsell, Hammond, Hancock, Hardeman, Hardy, W. H. Hatch, Hemphill, Henley, Herbert, A. S. Hewitt, G. W. Hewitt, Hill, Hoblitzell, Holman, Hopkins, Houseman, Hunt, Jeffords, B. W. Jones, J. H. Jones, Jordan, Kean, Kleiner, Laird, Lamb, Lanham, Le Fevre, Lewis, Long, Lore, Lovering, Lowry, Lyman, McAdoo, McMillin, Matson, Maybury, J. F. Miller, Mills, Mitchell, Morgan, Morse, Muldrow, Murphy, Murray, Mutchler, Neece, Oates, O'Ferrall, J. J. O'Neill, Paige, Patton, Pierce, Peel, Phelps, Poland, Post, Potter, Pryor, Pusey, Randall, Rankin, Ranney, G. W. Ray, Ossian Ray, Reese, Riggs, Robertson, Rockwell, J. H. Rogers, Rosecrans, Scales, Seney, Seymour, Shelley, Slocum, Smith, Spriggs, Springer, Charles Stewart, Stockslager, Storm, C. A. Sumner, D. H. Sumner, Talbott, J. M. Taylor, Thompson, Throckmorton, Tillman, Townshend, Tucker, Tully, H. G. Turner, Oscar Turner, Van Alstyne, Vance, Van Eaton, Wallace, Ward, Richard Warner, Wellborn, Weller, Wemple, Wilkins, Williams, Willis, W. L. Wilson, E. B. Winans, John Winans, G. D. Wise, Wolford, Wood, Woodward, Yaple, York, Young—168.

Nays—G. E. Adams, Anderson, Boutelle, Brainerd, F. B. Brewer, T. M. Browne, W. W. Brown, Brumm, Calkins, J. M. Campbell, Cannon, Chalmers, W. W. Culbertson, Cullen, Cutcheon, G. R. Davis, R. T. Davis, Dingley, Dunham, I. N. Evans, Everhart, Funston, Goff, Guenther, H. H. Hatch, D. B. Henderson, T. J. Henderson, Hiscock, Hitt, Holmes, Holton, Hooper, Horr, Howey, Johnson, Kasson, Keifer, Lacey, McCoid, McComas, McCormick, Millard, S. H. Miller, Milliken, Morrill, Nelson, Charles O'Neill, Parker, Payne, Payson, Perkins, Peters, Price, Reed, Rice, J. S. Robinson, Rowell, Ryan, C. R. Skinner, Smalls, Spooner, Steele, Stephenson, Stone, Strait, Struble, J. D. Taylor, Thomas, Valentine, Wadsworth, Wait, Wakefield, Washburn, Weaver, J. D. White, Milo White, Whiting, James Wilson—78.

Not Voting — Atkinson, Ballentine, Barksdale, Barr, Beach, Bennett, Bingham, Bisbee, Blackburn, Bland, Bowen, Boyle, Breitung, J. H. Brewer, Buckner, Cabell, Felix Campbell, Chace, Clardy, Collins, Connolly, Converse, Cook, S. S. Cox, Davidson, L. H. Davis, Dockery, Duncan, Ellwood, J. H. Evins, Fiedler, Findlay, Finerty, Foran, Fyan, Geddes, George, Green, Hanback, Harmer, Hart, Haynes, Hepburn, Houk, Hurd, Hutchins, James, J. K. Jones, J. T. Jones, Kelley, Kellogg, Ketcham, King, Lawrence, Libbey, Money, Morrison, Moulton, Muller, Nicholls, Nutting, Ochiltree, O'Hara, Pettibone, Reagan, W. E. Robinson, W. F. Rogers, Russell, Shaw, Singleton, T. G. Skinner, Snyder, Stevens, J. W. Stewart, E. B. Taylor, A. J. Warner, J. S. Wise, Worthington—78.

In the Senate, on reconsideration, the measure did not receive the requisite two-thirds majority, and failed to become a law. The following was the vote:

Yeas—Bayard, Beck, Brown, Butler, Call, Cameron of Pennsylvania, Cockrell, Coke, Fair, Farley, Garland, George, Groome, Hampton, Harris, Hoar, Jonas, Jones of Florida, Maxey, Morgan, Pike, Pugh, Ransom, Sewell, Vance, Vest, Voorhees—27.

Nays—Aldrich, Allison, Blair, Bowen, Cameron of Wisconsin, Conger, Dawes, Dolph, Edmunds, Hale, Harrison, Hawley, Hill, Ingalls, Lapham, Logan, McMillin, Miller of New York, Mitchell, Morrill, Palmer, Platt, Plumb, Sawyer, Sherman, Van Wyck, Wilson—27.

Absent — Anthony, Camden, Colquitt, Cullom, Frye, Gibson, Gorman, Jackson, Jones of Nevada, Kenna, Lamar, McPherson, Mahone, Manderson, Miller of California, Pendleton, Riddleberger, Sabin, Saulsbury, Slater, Walker, Williams—22.

Repeal of the Test-Oath.—Jan. 21, 1884, Mr. Cox, of New York, moved in the House to suspend the rules, and pass the bill to repeal the act of July 2, 1862, and such sections of the Revised Statutes as perpetuate the oath prescribed in said act. The following is the bill:

Be it enacted, etc., That the act of Congress entitled "An act to prescribe an oath of office, and for other purposes," and so much of the provisions of section 1756 of the Revised Statutes of the United States, and all other sections thereof which provide for the enforcement of the provisions of said act of July 2, 1862, be and the same are hereby repealed; and that no person hereafter shall be required to take the oath therein prescribed as a condition precedent to the holding of any office, or to serving as a juror, or to the acquirement of any right under the laws of the United States.

In support of the measure, Mr. Cox said: "When we stand in a semicircle before you, Mr. Speaker, to be sworn, there are two classes of members sworn. One class takes the oath prescribed by the Constitution—with a short addendum. The other takes the oath known as iron-clad. The latter is the disqualifying or test oath. It tests the fidelity of the affiant during the civil war, as to aiding, abetting, or giving countenance, counsel, encouragement, etc., to those engaged in armed hostility to the Government. It also tests the fidelity of the affiant as to the acceptance of office, or the exercise of the functions of any office whatever, etc. With permission, I place the oaths required of us, or what should be required, in juxtaposition, thus:

Good oath of bad rebel who did not support, etc., the Government.	*Bad oath of good patriot who did support, etc., the Government.*
I do solemnly swear that I will support, protect, and defend the Constitution and Government of the United States against all enemies, whether domestic or foreign, and that I will bear true faith and allegiance to the same; that I take this obligation freely, without any mental reservation or evasion; and that I will faithfully perform all the duties which may be required of me by law: So help me God.	I do solemnly swear that I have never voluntarily borne arms against the United States since I have been a citizen thereof; that I have voluntarily given no aid, countenance, counsel, or encouragement to persons engaged in armed hostility thereto; that I have neither sought, nor accepted, nor attempted to exercise the functions of any office whatever under any authority, or pretended authority, in hostility to the United States; that I have not yielded a voluntary support to any pretended government, authority, power, or constitution within the United States hostile or inimical thereto. And I do further swear that to the best of my knowledge and ability I will support and defend the Constitution of the United States against all enemies, foreign and domestic; that I will bear true faith and allegiance to the same; that I take this obligation freely, without any mental reservation or purpose of evasion, and that I will well and faithfully discharge the duties of the office on which I am about to enter: So help me God.

Constitutional oath, as it ought to be.

I swear to support the Constitution of the United States: So help me God. --*Article VI, section 3.*

"One of the ridiculous features of these two legalized oaths is, that it forces a person to swear that while he is taking the oath he is not forswearing himself, that he has no mental reservations, that he is playing no sleights with his conscience, no thimble-rig with words. He swears that he is not lying; while the man who is yet supposed by some to be, or has once been, obnoxious to our laws, judged by this very test-oath, swears the lovely oath of loyalty. The difference between these oaths is apparent. In my judgment, the only constitutional oath that ought to be is: 'I swear to support the Constitution of the United States. So help me God!' (Article VI, section 3). Such an oath would be applicable to us all. There would then be no two classes of men, differently sworn, yet sitting side by side as equals.

"All this bill proposes is to repeal the act of July 2, 1862, and such sections of the Revised Statutes of the United States as perpetuate the oath prescribed in said act, which is the 'iron-clad' oath. It thus makes all the oaths taken in this chamber like the one first referred to. It may not be known, but it is true, that this long test-oath was repealed by the act of April 20, 1871. It was never re-enacted, except in the Revised Statutes and by indirection, though the act of June 22, 1874, makes this, and all other revised acts, the law of the land."

In opposition to the measure Mr. Boutelle, of Maine, said: "We hear a great deal said in deprecation of exciting sectional animosities, and reviving sectional issues. I ask the gentleman from New York why he brings this sectional question in here to-day? We are living, sir, under a law in regard to our oaths which was adopted many years ago; a law which was supported by the gentleman from New York himself. I know of no reason whatever, I can understand no special cause for arresting the proceedings of this body to change the nature of the obligation which is assumed by the representatives of the people upon entering on their duties here. The gentleman says we ought not to have two oaths here. I want to say to him that we are not responsible for the fact that two oaths are required. I want to say to him that the loyal people of this country are not responsible for the fact that gentlemen on the one side or the other of this House are unable, unfortunately, to take that oath which I believe men should, under ordinary circumstances, be required to take before entering upon the legislative duties of a body like this, an oath that they had never attempted to destroy the government of their country.

"I understand perfectly well, Mr. Speaker, that we have had peculiar experience in this country. I understand perfectly well that we have modified the ordinary procedure. I do not undertake to question the validity of the seating of any member upon this floor. I do not undertake to cast any reflection upon any gentleman who is unable to take the iron-clad oath in this body. But when we are informed that there is an impropriety, or a hardship, or a lack of generosity in insisting that the oath of loyalty shall stand, for those who choose to take it, I think we are going faster than the country calls for."

The discussion was very brief, and the rules were suspended and the bill passed by a vote of 185 to 14. February 27, in the Senate, the bill was reported back by the Judiciary Committee, to which it had been referred, with an amendment striking out everything after the enacting clause, and substituting the following:

That section 1218 of the Revised Statutes of the United States be and is hereby amended so as to read as follows:

"Sec. 1218. No person who held a commission in the Army or Navy of the United States at the beginning of the late rebellion, and afterward served in any capacity in the military, naval, or civil service of the so-called Confederate States, or of either of the States in insurrection during the late rebellion, shall be appointed to any position in the Army or Navy of the United States."

SEC. 2. That section 1756 of the Revised Statutes be and the same is hereby repealed; and hereafter the oath to be taken by any person elected or appointed to any office of honor or profit, either in the civil, military, or naval service, except the President of the United States, shall be as prescribed in section 1757 of the Revised Statutes. But this repeal shall not affect the oaths prescribed by existing statutes in relation to the performance of duties in special or particular subordinate offices and employments.

SEC. 3. That the provisions of this act shall in no manner affect any right, duty, claim, obligation, or penalty now existing, or already incurred; and all and every such right, duty, claim, obligation, and penalty shall be heard, tried, and determined, and effect shall be given thereto, in the same manner as if this act had not been passed.

SEC. 4. That section 820 of the Revised Statutes, imposing certain disqualifications on grand and petit jurors in the courts of the United States, and section 821 of the Revised Statutes, prescribing an oath for grand and petit jurors in the courts of the United States, be and the same are hereby repealed.

The measure as amended passed without a division, and the title of the bill was changed so as to read "An act amending the Revised Statutes of the United States, in respect to official oaths, and for other purposes." May 7, the House concurred in the Senate amendments; and, May 14, the bill was returned with the approval of the President.

Count of the Electoral Vote.—The Senate took up this important matter Jan. 16, 1884, and the bill reported by Mr. Hoar, of Massachusetts, from the Committee on Privileges and Elections, was passed without a division. It is the bill that was passed by the Senate in the first session of the Forty-seventh Congress, and is entitled "A bill to fix the day for the meeting of the electors of President and Vice-President, and to provide for and regulate the counting of the votes for President and Vice-President, and the decision of the questions arising thereon":

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the electors of each State shall meet and give their votes on the second Monday in January next following their appointment, at such place in each State as the Legislature of such State shall direct.

SEC. 2. That each State may, pursuant to its laws existing on the day fixed for the appointment of the electors, try and determine, at least six days before the time fixed for the meeting of the electors, any controversy concerning their appointment or the appointment of any of them. Every such determination made pursuant to such law so existing on said day, and made at least six days prior to the said time of the meeting of electors, shall be conclusive evidence of the lawful title to office of the electors who shall have been so determined to have been appointed, and shall govern in the counting of the electoral votes as provided in the Constitution, and as hereinafter regulated.

SEC. 3. That it shall be the duty of the Executive of each State to cause three lists of the names of the electors of such State, duly ascertained according to the law of the State to have been chosen, to be made and certified, and to be delivered, as soon as may be after such final determination shall be had, to the electors, and before the day on which they are required by law to meet.

SEC. 4. That Congress shall be in session on the second Wednesday in February succeeding every meeting of the electors. The Senate and House of Representatives shall meet in the hall of the House of Representatives at the hour of one o'clock in the afternoon on that day, and the President of the Senate shall be their presiding officer. Two tellers shall be previously appointed on the part of the Senate and two on the part of the House of Representatives, to whom shall be handed, as they are opened by the President of the Senate, all the certificates and papers purporting to be certificates of the electoral votes, which certificates and papers shall be opened, presented, and acted upon in the alphabetical order of the States, beginning with the letter A; and said tellers, having then read the same in the presence and hearing of the two Houses, shall make a list of the votes as they shall appear from the said certificates; and the votes having been ascertained and counted in the manner and according to the rules in this act provided, the result of the same shall be delivered to the President of the Senate, who shall thereupon announce the state of the vote, and the names of the persons, if any, elected, which announcement shall be deemed a sufficient declaration of the persons, if any, elected President and Vice-President of the United States, and, together with a list of the votes, be entered on the journals of the two houses. Upon such reading of any such certificate or paper, the President of the Senate shall call for objections, if any. Every objection shall be made in writing, and shall state clearly and concisely, and without argument, the ground thereof, and shall be signed by at least one Senator and one member of the House of Representatives before the same shall be received. When all objections so made to any vote or paper from a State shall have been received and read, the Senate shall thereupon withdraw, and such objections shall be submitted to the Senate for its decision; and the Speaker of the House of Representatives shall, in like manner, submit such objections to the House of Representatives for its decision; and no electoral vote or votes from any State from which but one return has been received shall be rejected except by the affirmative votes of both houses. If more than one return or paper purporting to be a return from a State shall have been received by the President of the Senate, those votes, and those only, shall be counted which shall have been regularly given by the electors who are shown by the evidence mentioned in section 2 of this act to have been appointed, if the determination in said section provided for shall have been made; but in case there shall arise the question which of two or more of such State tribunals determining what electors have been appointed, as mentioned in section 2 of this act, is the lawful tribunal of such State, the votes regularly given of those electors, and those only, of such State shall be counted whose title as electors the two houses, acting separately, shall concurrently decide is supported by the decision of the tribunal of such State so authorized by its laws. And in such case of more than one return or paper purporting to be a return from a State, if there shall have been no such determination of the question in the State aforesaid, then those votes, and those only, shall be counted which the two houses, acting separately, shall concurrently decide to be the lawful votes of the legally appointed electors of such State. When the two houses have voted, they shall immediately again meet, and the presiding officer shall then announce the decision of the question submitted. No votes or papers from any other State shall be acted upon until the objections previously made to the votes or papers from any State shall have been finally disposed of.

SEC. 5. That while the two houses shall be in meeting as provided in this act, the President of the Senate shall have power to preserve order; and no debate shall be allowed and no question shall be put by the presiding officer except to either house on a motion to withdraw.

SEC. 6. That when the two houses separate to decide upon an objection that may have been made to the counting of any electoral vote or votes from any State, or other question arising in the matter, each Senator and Representative may speak to such objection or question five minutes, and not more than once; but after such debate shall have lasted two hours it shall be the duty of the presiding officer of each house to put the main question without further debate.

SEC. 7. That at such joint meeting of the two houses seats shall be provided as follows: For the President of the Senate, the Speaker's chair; for the Speaker, immediately upon his left; the Senators, in the body of the hall upon the right of the presiding officer; for the Representatives, in the body of the hall not provided for the Senators; for the tellers, Secretary of the Senate, and Clerk of the House of Representatives, at the Clerk's desk; for the other officers of the two houses, in front of the Clerk's desk and upon each side of the Speaker's platform. Such joint meeting shall not be dissolved until the count of electoral votes shall be completed and the result declared; and no recess shall be taken unless a question shall have arisen in regard to counting any such votes, or otherwise under this act, in which case it shall be competent for either house, acting separately, in the manner hereinbefore provided, to direct a recess of such house not beyond the next calendar day, Sunday excepted, at the hour of ten o'clock in the forenoon. But if the counting of the electoral votes and the declaration of the result shall not have been completed before the fifth calendar day next after such first meeting of the two houses, no further or other recess shall be taken by either house.

June 12th, in the House, Mr. Eaton, of Connecticut, reported the bill, moving to strike out all after the enacting clause and insert the following:

That the electors of each State shall meet and give their votes on the second Monday in December next following their appointment, at such place in each State as the Legislature of such State shall direct.

SEC. 2. That it shall be the duty of the Executive of each State to cause three lists of the names of the electors of such State duly ascertained according to the law of the State to have been chosen to be made and certified, and to be delivered as soon as may be after such determination shall be had, to the electors, and before the day on which they are required by law to meet.

SEC. 3. That Congress shall be in session on the second Tuesday in January succeeding every meeting of the electors. The Senate and House of Representatives shall meet in the hall of the House of Representatives at the hour of one o'clock in the afternoon on that day in joint convention; and the President of the Senate shall be the presiding officer of said joint convention. Two tellers shall be previously appointed on the part of the Senate and two on the part of the House of Representatives, to whom shall be handed, as they are opened by the President of the Senate, all the certificates and papers purporting to be certificates of the electoral votes, which certificates and papers shall be opened, presented, and acted upon in the alphabetical order of the States, beginning with the State of Alabama; and said tellers, having then read the same in the presence and hearing of the joint convention, shall make a list of the votes as they shall appear from the said certificates; and the votes having been ascertained and counted by the tellers, the result shall be delivered to the presiding officer of the joint convention, who shall thereupon announce the state of the vote, and the names of the persons, if any, elected President and Vice-President of the United States; and said announcement, together with a list of the votes, shall be entered on the journals of the Senate and the House of Representatives; and the presiding officer of the joint convention shall, as soon as may be, notify said persons of their election to said offices of President and Vice-President; and if upon the call of a State no objection is made to the return, then the vote thereof shall be counted and added to the list of States whose votes are determined; but in case objection has been made, as hereinafter provided, then said return shall be laid aside, to be proceeded with in the same manner as is hereinafter provided for the case of a double return of votes from a State. All objections to the counting of the vote of any State shall be made in writing and signed by at least three members of the joint convention, before the call of said State, said objections to be placed in the hands of the presiding officer of said joint convention, who shall present the same upon the call of the State. If more than one return or paper purporting to be a return from a State shall have been received by the President of the Senate, then and in that case the presiding officer of the joint convention shall submit to the members thereof the determination as to which is the proper return; and three hours shall be allowed for debate, and the joint convention shall then proceed to vote per capita, commencing with the State of Alabama; and those votes shall be counted and added to the list of votes already ascertained which a majority of the joint convention shall determine to have been contained in the proper and legal return.

SEC. 4. That sections 135 and 142 of the Revised Statutes are hereby repealed.

SEC. 5. That at such joint convention of the two houses seats shall be provided as follows: For the President of the Senate, the Speaker's chair; for the Speaker, immediately upon his left; the Senators, in the body of the hall upon the right of the presiding officer; for the Representatives, in the body of the hall not provided for the Senators; for the tellers, Secretary of the Senate, and Clerk of the House of Representatives, at the Clerk's desk; for the other officers of the two houses, in front of the Clerk's desk and upon each side of the Speaker's platform. Such joint convention shall not be dissolved until the count of the electoral votes shall be completed and the result declared; and no recess shall be taken for a longer time than one calendar day; and upon the reassembling of the joint convention on the Saturday after its first meeting, should the count and declaration of votes not have previously been made and announced, no further or other recess shall be had until the count of the electoral votes shall be completed and the result declared.

This substitute for the Senate measure was adopted by the House by the following vote, June 12:

YEAS—Aiken, Alexander, Arnot, Bagley, Ballentine, Beach, Belford, Bennett, Blanchard, Bland, Boyle, Breckinridge, Buchanan, Budd, Cabell, Caldwell, Felix Campbell, Candler, Carleton, Cassidy, Clements, Cobb, Connolly, Cosgrove, Covington, S. S. Cox, Crisp, D. B. Culberson, Curtin, Dargan, L. H. Davis, Dibble, Dibrell, Dorsheimer, Dowd, Dunn, Eaton, Eldredge, Elliott, Ellis, English, Ermentrout, Ferrell, Finerty, Follett, Foran, Glascock, Green, Greenleaf, Halsell, Hammond, Hancock, Hardeman, Hardy, W. H. Hatch, Hemphill, Henley, A. S. Hewitt, Hoblitzell, Hopkins, Houseman, Hunt, B. W. Jones, J. H. Jones, Jordan, Kleiner, Lanham, Lewis, Lore, Lovering, Lowry, McAdoo, McMillin, Maybury, J. F. Miller, Mills, Mitchell, Money, Morrison, Moulton, Murphy, Murray, Mutchler, Neece, O'Ferrall, J. J. O'Neill, Patton, Peel, Pierce, Post, Potter, Pryor, Pusey, Randall, Rankin, Reese, Robertson, Rosecrans, Seney, Seymour, Spriggs, Springer, Stevens, Charles Stewart, Storm, C. A. Sumner, J. M. Taylor, Thompson, Tillman, Tully, Oscar Turner, Van Alstyne, Van Eaton, Wallace, Ward, Richard Warner, Wellborn, Weller, Wemple, Williams, Willis, W. L. Wilson,

E. B. Winans, John Winans, G. D. Wise, Wood, Yaple—127.

Nays—G. E. Adams, Anderson, Atkinson, Barksdale, Belmont, Bingham, Bisbee, F. B. Brewer, Broadhead, T. M. Browne, W. W. Brown, Cannon, W. W. Culbertson, Cutcheon, G. R. Davis, R. T. Davis, Dunham, Ellwood, I. N. Evans, Everhardt, Garrison, Goff, Hart, H. H. Hatch, T. J. Henderson, Herbert, G. W. Hewitt, Hiscock, Hitt, Holman, Holmes, Horr, Howey, Hurd, James, Jeffords, J. K. Jones, Kean, Kelley, Laird, Lyman, McCoid, Millard, S. H. Miller, Nelson, Nutting, O'Hara, Parker, Payson, Perkins, Peters, Poland, Price, Ranney, G. W. Ray, Rice, Rowell, Ryan, Scales, Shelley, C. R. Skinner, Smalls, Smith, Spooner, Stephenson, Stockslager, Stone, Struble, J. D. Taylor, Tucker, H. G. Turner, Valentine, Wakefield, Washburn, Weaver, J. D. White, Milo White, James Wilson, Wolford, Woodward, Worthington, York—82.

Not Voting—J. J. Adams, Barbour, Barr, Bayne, Blackburn, Blount, Boutelle, Bowen, Brainerd, Breitung, J. H. Brewer, Brumm, Buckner, Burleigh, Burnes, Calkins, J. E. Campbell, J. M. Campbell, Chace, Clardy, Clay, Collins, Converse, Cook, W. R. Cox, Cullen, Davidson, Deuster, Dingley, Dockery, Duncan, J. H. Evins, Fiedler, Findlay, Forney, Funston, Fyan, Geddes, George, Gibson, Graves, Guenther, Hanback, Harmer, Haynes, D. B. Henderson, Hepburn, Hill, Holton, Hooper, Houk, Hutchins, Johnson, J. T. Jones, Kasson, Keifer, Kellogg, Ketcham, King, Lacey, Lamb, Lawrence, Le Fevre, Libbey, Long, McComas, McCormick, Matson, Milliken, Morgan, Morrill, Morse, Muldrow, Muller, Nicholls, Oates, Ochiltree, Charles O'Neill, Paige, Payne, Pettibone, Phelps, Ossian Ray, Reagan, Reed, Riggs, J. S. Robinson, W. E. Robinson, Rockwell, J. H. Rogers, W. F. Rogers, Russell, Shaw, Singleton, T. G. Skinner, Slocum, Snyder, Steele, J. W. Stewart, Strait, D. H. Sumner, Talbott, E. B. Taylor, Thomas, Throckmorton, Townshend, Vance, Wadsworth, Wait, A. J. Warner, Whiting, Wilkins, J. S. Wise, Young—114.

The measure then passed without a division, but as the Senate non-concurred in the House amendments and the conference committee appointed failed to agree, the bill fell by the way.

Strengthening the Navy.—February 29, the Senate passed by a vote of 38 to 13 a bill to provide for the construction of two cruisers, one dispatch-boat, two heavily armed gunboats, two gunboats, one cruising torpedo-boat, two harbor torpedo-boats, and one steel ram, at a cost not to exceed $2,500,000. This measure was not considered in the House, and when the naval appropriation bill came up from that body the Senate Committee on Appropriations, among other amendments, proposed the following:

> To enable the President to strengthen the naval establishment of the United States the sum of $2,500,000 is hereby appropriated, to be expended as follows, and under the following limitations: For the construction of one cruiser of 4,500 tons displacement, one cruiser of 3,000 tons, one dispatch-vessel of 1,500 tons, two heavily-armed gunboats of 1,500 tons each, and one light gunboat of 750 tons, and one gunboat, not to exceed 900 tons, to be built on plans and specifications to be furnished by the Admiral of the Navy, and under his supervision and directions, subject to the approval of the Secretary of the Navy, one steel ram, as recommended by the first naval advisory board, November 7, 1881; one cruising torpedo-boat, advocated by the same board and by the present advisory board in its memorandum of November 21, 1882; and two of the harbor torpedo-boats recommended by said first board and in the report from the Bureau of Ordnance of November 1, 1883, all of which are recommended in the annual report of the Secretary of the Navy. And, under existing law, it shall be the duty of the advisory board appointed in conformity with an act making appropriations for the naval service for the fiscal year ending June 30, 1883, and for other purposes, approved August 5, 1882, to advise and assist the Secretary of the Navy, in his office or elsewhere, in all matters referred to them by him relative to the designs, models, plans, specifications, and contracts for said vessels in all their parts, and relative to the materials to be used therein and to the construction thereof, and especially relative to the harmonious adjustment, respectively, of their hulls, machinery, and armament; and they shall examine all materials to be used in said vessels, and inspect the work on the same as it progresses, and have general supervision thereof, under the direction of said Secretary. But said board shall have no power to make or enter into any contract nor to direct or control any officer of the Navy, the chief of any bureau of the Navy, or any contractor. Neither of the vessels hereby authorized to be built shall be contracted for or commenced until full and complete detail drawings and specifications thereof, in all its parts, including the hull, engines, and boilers, shall have been provided or adopted by the Navy Department, and shall have been approved, in writing, by said board, or by a majority of the members thereof, and by the Secretary of the Navy; and after said drawings and specifications have been provided, adopted, and approved as aforesaid, and the work has been commenced, or a contract made for it, they shall not be changed in any respect, when the cost of such change shall in the construction exceed $500, except upon the approval of said board, or a majority of the members thereof, in writing, and upon the written order of the Secretary of the Navy; and if changes are thus made, the actual cost thereof and the damage caused thereby shall be ascertained, estimated, and determined by said board; and in any contract made pursuant to this act it shall be provided in the terms thereof that the contractor shall be bound by the determination of said board, or a majority thereof, as to the amount of the increased or diminished compensation said contractor shall be entitled to receive, if any, in consequence of such change or changes. And for the construction of all which vessels and their armament the Secretary of the Navy shall invite proposals from all American ship-builders and builders of machinery, who shall show to the satisfaction of the Secretary of the Navy that within three months from the date of the contract their ship-yards will be equipped for building and repairing iron and steel steamships, and constructors of marine engines, machinery, and boilers; and the Secretary of the Navy is authorized to construct said vessels and procure their armament at a total cost for each not exceeding the amounts estimated by the naval advisory board; and in the event that such vessels, or any of them, shall be built by contract, such building shall be under contract with the lowest and best responsible bidder or bidders, made after at least sixty days' advertisement, published in five of the leading newspapers of the United States, inviting proposals for constructing said vessels, subject to all such rules, regulations, superintendence, and provisions as to bonds and security for the due completion of the work as the Secretary of the Navy shall prescribe; and no such vessel shall be accepted unless completed in strict conformity with the contract, with the advice and assistance of the naval advisory board, and in all respects in accordance with the provisions of the act of August 5, 1882, except as they are hereby modified; and the authority to construct the same shall take effect at once: *Provided*, That the Secretary of the Navy shall utilize the national navy-yards, with the machinery, tools, and appliances belonging to the Government there in use, in the building of said ships, or any

parts thereof, as fully and to as great an extent as the same can be done with advantage to the Government.

The amendment was opposed as introducing into the appropriation bill what should be independent legislation; but it was adopted April 14, by the following vote:

Yeas—Aldrich, Allison, Bowen, Butler, Cameron of Wisconsin, Conger, Dolph, Frye, Garland, Hale, Harrison, Hawley, Hoar, Jones of Florida, Logan, McMillan, Miller of California, Mitchell, Morgan, Morrill, Pike, Platt, Riddleberger, Sabin, Sawyer, Sewell, Wilson—27.

Nays—Bayard, Beck, Brown, Coke, Colquitt, Farley, George, Groome, Hampton, Harris, Jackson, McPherson, Pugh, Ransom, Slater, Vance, Van Wyck—18.

Absent—Anthony, Blair, Call, Camden, Cameron of Pennsylvania, Cockrell, Cullom, Dawes, Edmunds, Fair, Gibson, Gorman, Hill, Ingalls, Jones of Nevada, Kenna, Lamar, Lapham, Mahone, Manderson, Maxey, Miller of New York, Palmer, Pendleton, Plumb, Saulsbury, Sherman, Vest, Voorhees, Walker, Williams—31.

The Senate passed the amended appropriation bill the same day, and the House non-concurred in the amendments, with the exception of one for the armament of new vessels. Two conference committees were appointed in succession, and both failed to come to any agreement, so that the appropriation bill was not completed. To remedy this failure, a bill was brought forward in the House and passed July 6, making temporary provision for the naval service. The bill is as follows:

Be it enacted, etc., That for the purpose of providing for the expenses of the naval service for the six months ending Dec. 31, 1884, there is hereby appropriated out of any money in the Treasury not otherwise appropriated one half, or 50 per cent., of the sums of money and for like purposes, and continuing the same provisions relating thereto, as were appropriated for the purposes of the fiscal year ending June 30, 1884, by the act entitled "An act making appropriations for the naval service for the fiscal year ending June 30, 1884, and for other purposes," approved March 3, 1883, except as hereinafter declared, subject to the limitations and conditions in respect to the disbursements of the appropriations hereby made that were imposed by said act and the other laws of the United States upon or in respect to appropriations made by said act: *Provided*, That nothing is appropriated by this act "for special ocean-surveys and the publication thereof," or "for the purchase and manufacture, after full investigation and test in the United States, under the direction of the Secretary of the Navy, of torpedoes adapted to naval warfare or the right to manufacture the same," and for the fixtures and machinery necessary for operating the same.

That the clause under the heading of "Bureau of Yards and Docks," commencing "For general maintenance of yards and docks," is amended so as to appropriate for the six months herein provided the sum of $110,000.

That under the heading of "Increase of the Navy" in said act, in lieu of the paragraphs thereunder preceding the heading of "Naval Academy" there is substituted the following:

For continuing work upon the three new steel cruisers and one dispatch-boat authorized by act of Congress approved March 3, 1883, as follows: Chicago, $349,133.45; Boston, $231,853.28; Atlanta, $231,853.27; Dolphin, $108,660; in all, $921,500; the four pivot-guns of the Chicago to be mounted on Clark's deflective single-gun turrets or V-shields of the same weight as is now allowed for the mounting and armor protection of the guns: *Provided*, That it shall not change the contract entered into by the Government for the construction of said vessels.

For completion of steam machinery and boilers, with necessary fittings for sea-service of steel cruisers and dispatch-boat, under contract with John Roach, as per act approved March 3, 1883: United States steel cruiser Chicago, $220,000; United States steel cruiser Boston, $155,000; United States steel cruiser Atlanta, $155,000; United States dispatch-boat Dolphin, $90,000; in all, $620,000. For completing equipment, outfit of three new cruisers, and one dispatch-boat, now in course of construction, $78,600. For navigation outfit of the four new steel cruisers, $80,000. For ordnance outfit of the three new steel cruisers and one dispatch-boat, $500,000.

Nothing herein contained shall be construed as appropriating money for or authorizing the continuation of work upon the double-turreted monitors Monadnock, Terror, Amphitrite, and Puritan; and any unexpended balance now remaining of the appropriations contained in said act, approved March 3, 1883, for engines and machinery for the said double-turreted monitors, shall be covered into the Treasury, except such part thereof as may be required under existing contracts made for the engines and machinery of the three last-named monitors.

The Senate passed this measure the same day, with an amendment, from which it receded on the non-concurrence of the House, and July 7 the bill was returned with the approval of the President.

Admission of Territories as States.—May 13, 1884, the House of Representatives took up the consideration of the following measure, as reported from the Committee on Territories:

Be it enacted, etc., That hereafter no Territory shall form a constitution or apply for admission as a State into the Union until it shall contain a permanent population equal to that required in a congressional district in order to entitle it to representation in the House of Representatives.

The objections to the measure were put succinctly by Mr. Kasson, of Iowa. He said:

"There is one very serious objection, and, I think, a very sufficient one, to this bill. It imposes one sort of restriction upon the future action of Congress in admitting under a constitution satisfactory to it any Territory as a State into the Union. That can not bind Congress. This bill goes on the theory that it can bind Congress, and it attempts to bind the people. My second objection is that it is wrong. It is in spirit unconstitutional, inasmuch as it denies to the people of a Territory the right to petition in its highest form. That highest form is the assemblage of the people of a Territory of this Union to consider their interests and declare the conclusion they have come to in the embodied form of a constitution, and to present it to the Congress of the United States. My great objection to the form in which the bill provides for certain results is that it prohibits the people, who are *pro tanto* sovereign in the Territories, from embodying their rights in the form of a constitution and presenting it here with their petition to be admitted as a State of the Union."

The considerations in favor of the measure were summed up in the short statement of Mr. Potter, of New York, who said:

"Mr. Speaker, I can not quite agree that this bill will be utterly useless. I hope it will be of some use. I hope it may serve the purpose of announcing to the country that the Congress of the United States recognizes the injustice of longer pursuing a course which invites populations less than the ratio of representation for one member upon this floor to balance and control and negative, it may be, the policy of this great Union, if not in this at least in the other end of the Capitol. We have gone too far already in administering the Government in this particular; too far in denying the vast populations and vast interests of the great States their just influence and their equal share in proportion to their population. They should have an influence in this Government as far as possible under the Constitution equal to their population and importance.

"I think, sir, it is time to recognize in Congress, and to announce it from the Congress of the United States, that it is to be the policy of the country, at least so far as this particular Congress is concerned, that the great populations of the great States are not to be overridden and their just influence denied by admitting States on the frontiers with one Representative on this floor and two in the Senate, when they have scarcely population enough to make a respectable town in one of the older States. Look for a moment at the influence of these States in the other end of the Capitol as to the treaty-making power, and the power intended to be a portion of the appointing power of the Executive. I regret to say they have arrogated to themselves the power of controlling the executive functions and action of this Government.

"The bill can do no harm in giving this notice to the Territories of the country. It simply says to them, 'You will not be admitted here as a State until, according to the judgment of Congress, you have a population sufficient to entitle you to one Representative on this floor.' To my mind any other course is monstrously unjust to the older States of the Union. I believe in the moral effect of the bill, and I would pass it if for no other purpose than to give that notice to the country."

The bill was tabled by a vote of 109 yeas to 15 nays.

Clearance-Fees of Domestic Vessels.—In the House, June 20, a bill to amend sections 4381 and 4382 of the Revised Statutes of the United States, relative to fees levied and collected from the owners and masters of vessels in domestic commerce, was brought forward and passed. It is as follows:

Be it enacted, etc., That paragraphs numbered 6 and 7, respectively, of section numbered 4381, be and the same are hereby severally amended so as to read as follows:

"Sixth. For certifying manifests and granting a permit for a licensed vessel to proceed from district to district, ten cents.

"Seventh. For receiving a certified manifest and granting a permit on the arrival of such licensed vessel, ten cents."

Sec. 2. That paragraphs numbered 6 and 8 respectively, of section numbered 4382 of the Revised Statutes of the United States, be and the same are hereby severally amended so as to read as follows:

"Sixth. For certifying manifest, including master's oath, and granting permit for vessel to go from district to district, ten cents.

"Eighth. For receiving manifest, including master's oath, on arrival of a vessel from one collection district to another, whether touching at foreign intermediate ports or not, ten cents."

Sec. 3. That paragraphs numbered 7 and 9, respectively, of section 4382 of the Revised Statutes of the United States, be and the same are hereby repealed.

Its purpose was explained by Mr. Maybury, of Michigan, who said:

"The bill just read was reported from the Committee on Commerce as a substitute for a bill introduced by myself. The report of the committee is unanimous. The bill is also recommended by the Secretary of the Treasury, whose letter accompanies the report.

"The object of the bill is that the clearance-fees of vessels navigating the lakes of the Northwest, and also vessels engaged in the coasting-trade, shall be reduced from fifty or twenty-five cents, according to the tonnage, to ten cents. Under the present system, which was inaugurated in the early years of the war, and was made a source of revenue, vessels navigating the rivers and lakes of the Northwest are obliged to pay entrance and clearance fees of twenty-five to fifty cents, according to their tonnage. Under this system a vessel plying upon our rivers from one district to another is obliged to pay these clearance-fees, which, in the case of excursion-boats, amount to five or six or even as high as ten dollars for a single trip along the river and lakes.

"This is an oppressive imposition upon commerce, and the Secretary of the Treasury, to whom the matter was submitted, says in his letter that there is no reason in the world why this imposition should be kept up; that the object of clearance is simply to keep track of the tonnage and the passenger-list, and that this can be accomplished as well by a fee of ten cents as by a fee of fifty cents."

The bill passed the Senate July 3, and was approved by the President July 7.

Land-Grant Railroads.—Various bills forfeiting land grants were considered. In the House a bill was passed January 31, entitled "An act declaring forfeited certain grants of land made to certain States in aid of the construction of railroads." The grants aimed at were made by the acts of Aug. 11, 1856, June 3, 1856, and March 3, 1857, and others of the same era, to Mississippi, Alabama, Arkansas, and Louisiana, to aid in the construction of certain State and interstate railways. The Senate took no action on the measure. The same day an act was passed by the House declaring forfeited all unearned lands granted to the Texas Pacific Railroad by the act of March 3, 1871, and acts amendatory thereof and supplementary thereto. The vote was 260 to 1 in favor of the measure; but the Senate did not take it up. June 4, the

House passed, by a vote of 139 to 26, a bill declaring forfeited the Oregon Central Railroad grant made by the act of May 4, 1870, passed "to aid in the construction of a railroad and telegraph line from Portland to Astoria and McMinneville, in the State of Oregon." The Senate let the measure severely alone. June 6, the House passed a bill declaring forfeited lands granted by the act of July 25, 1864, to aid in the construction of a railroad from the Central Pacific Railroad in California to Portland, Oregon. No action was taken by the Senate on the measure. June 20, the House passed a bill declaring forfeited all unearned lands granted by the act of May 12, 1864, to the State of Iowa, to aid in the construction of a railroad within its limits, and granted by the State Legislature to the Sioux City and St. Paul Railroad Company. The Senate let the bill sink out of sight. June 26, the House rejected, after a long debate, an act to repeal section 22 of the act to incorporate the Texas Pacific Railroad Company, approved March 3, 1871, and to declare forfeited the land grant made therein. The section gave to the New Orleans, Baton Rouge, and Vicksburg Railroad Company, chartered by the State of Louisiana, a right to connect with the eastern terminus of the Texas Pacific Railroad by the most eligible route, with right of way through the public lands and alternate sections of public lands in Louisiana, to the same extent per mile as granted by the act to the Texas Pacific in the State of California. There were measures introduced in the Senate for the forfeiture of the unearned lands granted to the Northern Pacific Railroad Company, but nothing was done with them. Both House and Senate passed, on June 7 and June 16 respectively, a bill for the forfeiture of all unearned lands granted to the Atlantic and Pacific Railroad by the act of July 27, 1866, except the right of way and lands for stations. The original grant was made "to aid in the construction of a railroad and telegraph line from the States of Missouri and Arkansas to the Pacific coast." The measure as passed by the House was amended in the Senate by the addition of provisions for the settlement of disputes as to title, and then passed; but the bill was not brought to completion.

June 18, the House passed a bill to amend an act entitled

"An act to aid in the construction of a railroad and telegraph line from the Missouri river to the Pacific Ocean, and to secure to the Government the use of the same for postal, military, and other purposes," approved July 1, 1862; also to amend an act approved July 2, 1864, and also an act approved May 7, 1878, both in amendment of said first-mentioned act.

After reciting the failure of various subsidized railroad companies to fulfill their obligations, the bill enacted that the provisions of the Thurman sinking-fund act be extended to the Kansas Pacific Railroad Company, the Sioux City and Pacific Railroad Company, and the Central Branch of the Union Pacific Railroad; that the Secretary of the Treasury be allowed to invest the sinking fund in first-mortgage bonds of the various railroad companies or in United States securities; that there shall be carried to the credit of the sinking fund, on the first of February each year by the Central Pacific Railroad, an amount, variously made up, aggregating 55 per cent. of the net earnings of the road for the previous year; by the Union Pacific, an amount aggregating 35 per cent.; by the Kansas Pacific, amounts aggregating to 45 per cent.; by the Central Branch Union Pacific, amounts aggregating 35 per cent.; by the Sioux City, amounts aggregating 35 per cent.; that in cases where the residue of the net earnings is insufficient to pay the interest on obligations paramount to those of the United States, the Secretary of the Treasury remit sufficient of the amount levied for the sinking fund to pay such interest; that on or before January, 1885, the Central Pacific pay into the sinking fund $5,000,000, the Union Pacific $5,000,000, the Kansas Pacific $2,000,000, the Sioux City $500,000, and the Central Branch $500,000, subject, however, to certain deductions for services rendered; that none of these roads shall pay a dividend at any time when it is behindhand in its obligations to the United States, or its obligations on claims paramount to those of the United States, and, in case of any such payment, the dividend may be recovered by the United States from the stockholder who received it, and the directors who voted it shall be deemed guilty of a misdemeanor; that the sinking fund shall be used to redeem bonds of the United States issued in aid of the railroads, and to pay off all lawful liens and mortgages in order of priority; that the sums required by the act to be paid shall be considered a lien upon the roads and their property; and that the failure of any of the railroad companies to comply with the terms of the act shall be considered, after the lapse of six months, a forfeiture of all its franchises derived from the United States. On this measure the Senate took no action.

The Public Lands.—January 21, Mr. Holman, of Indiana, brought forward in the House the following resolutions, moving the suspension of the rules for their passage:

Resolved, That in the judgment of this House all the public lands heretofore granted to States and corporations to aid in the construction of railroads, so far as the same are now subject to forfeiture by reason of the non-fulfillment of the conditions on which the grants were made, ought to be declared forfeited to the United States, and restored to the public domain.

Resolved, That it is of the highest public interest that the laws touching the public lands should be so framed and administered as to ultimately secure freehold therein to the greatest number of citizens; and to that end all laws facilitating speculation in the public lands, or authorizing or permitting the entry or purchase thereof in large bodies, ought to be repealed, and all of the public lands adapted to agriculture (subject to bounty grants, and those in aid of education) ought to be reserved for the benefit of actual and *bona fide* settlers, and disposed of under the provisions of the homestead laws only.

Resolved, That the Committee on the Public Lands is hereby instructed to report to the House bills to carry into effect the views expressed in the foregoing resolutions; that said committee shall be authorized to report such bills at any time, subject only to revenue and appropriation bills, and the same shall in like order be entitled to consideration.

In explanation of the resolutions Mr. Holman said: "Mr. Speaker, reading the report of the Commissioner of the General Land-Office, and of the Secretary of the Interior, both unusually valuable reports, can leave no gentleman uninformed of the fact that under the present state of the laws large bodies of public land are being secured by individual capitalists; and not by American citizens only, but by great capitalists of Europe. For that purpose mainly the pre-emption law is employed, and Congress has been urged repeatedly, both by the Commissioner of the General Land-Office and the Secretary of the Interior, to repeal that law, upon the ground that, through its instrumentality and the facilities for fraud it furnished, countless frauds are being perpetrated, and capitalists are securing enormous tracts of the public domain, to the detriment of the country, and injury of actual settlers. That law in former years, when capital was not seeking investments in public lands, was a wholesome provision, but now it is a shelter for fraud, and an agent of land monopoly.

"So, Mr. Speaker, without entering upon any general discussion, in the few moments at my disposal, of the public-land system of the country, I need only refer to the administration of that single law to answer the question I am asked. It is absolutely certain that under your land system vast private estates are being carved out of your public lands by capitalists, many of whom are not even American citizens, nor intending to become American citizens, and that, too, against our unquestioned policy for a hundred years, that our public-land laws should be so framed, and so administered, as to secure the largest ownership of public lands by the men whose labor would make them fruitful—a policy which has been held to be the only safe foundation for our American institutions by the wisest statesmen the republic has produced. The safety of our institutions rests on the ownership of the lands by the people. Our free institutions can not survive a monopoly of lands. So far as we permit monopoly of the public lands we weaken the foundations of the republic."

The motion of Mr. Holman was agreed to as follows:

Yeas—G. E. Adams, Aiken, Alexander, Anderson, Arnot, Atkinson, Bagley, Ballentine, Bayne, Belford, Bennett, Blanchard, Bland, Blount, Boutelle, Bowen, Boyle, Breckinridge, Breitung, F. B. Brewer, J. H. Brewer, Broadhead, T. M. Browne, W. W. Brown. Buchanan, Budd, Cabell, Caldwell, Calkins, F. Campbell, J. M. Campbell, Candler, Cannon, Carleton, Cassidy, Clardy, Clay, Clements, Cobb, Collins, Connolly, Converse, Cook, Cosgrove, Covington, S. S. Cox, W. R. Cox, Crisp, D. B. Culberson, W. W. Culbertson, Cullen, Cutcheon, Dargan, G. R. Davis, L. H. Davis, Deuster, Dibble, Dibrell, Dingley, Dockery, Dorsheimer, Dowd, Dunham, Duncan, Dunn, Eldredge, Elliott, Ellwood, Ermentrout, Everhart, Ferrell, Fiedler, Findlay, Finerty, Follett, Foran, Forney, Fyan, Geddes, Gibson, Glascock, Goff, Green, Greenleaf, Guenther, Halsell, Hanback, Hardeman, Hardy, Hart, W. H. Hatch, Haynes, Hemphill, D. B. Henderson, Henley, Hepburn, Herbert, A. S. Hewitt, G. W. Hewitt, Hill, Hiscock, Hitt, Holman, Holmes, Holton, Hooper, Hopkins, Houseman, Howey, Hunt, Hurd, James, Jeffords, Johnson, B. W. Jones, J. H. Jones, J. K. Jones, J. T. Jones, Kasson, Keifer, Ketcham, Kleiner, Lacey, Lamb. Lanham, Lawrence, Le Fevre, Lewis, Long, Lore, Lovering, Lowry, Mackey, McAdoo, McCoid, McComas, McCormick, McKinley, McMillin, Matson, Millard, J. F. Miller, S. H. Miller, Milliken, Mills, Mitchell, Morey, Morgan, Morrill, Morrison, Moulton, Murphy, Murray, Mutchler, Neece, Nelson, Nutting, Oates, O'Hara, Charles O'Neill, J. J. O'Neill, Parker, Patton, Payson. Pierce, S. W. Peel, S. J. Peelle, Perkins, Peters, Phelps, Post, Price, Pryor, Pusey, Randall, G. W. Ray, Ossian Ray, Reagan, Reese, Riggs, Robertson, W. E. Robinson, J. H. Rogers, W. F. Rogers, Rosecrans, Rowell, Ryan, Scales, Seney, Seymour, Shaw, Shelley, Singleton, C. R. Skinner, T. G. Skinner, Slocum, Smith, Snyder, Spooner, Spriggs, Springer, Steele, Stephenson, Stevens, Charles Stewart, Stockslager, Storm, Strait, Struble, C. A. Sumner, D. H. Sumner, Talbott, E. B. Taylor, J. D. Taylor, J. M. Taylor, Thomas, Throckmorton, Tillman, Townshend, Tully, H. G. Turner, Oscar Turner, Valentine, Van Alstyne, Vance, Wait, Wakefield, Ward, A. J. Warner, Richard Warner, Washburn, Wellborn, Weller, Wemple, J. D. White, Milo White, Wilkins, Williams, Willis, James Wilson, E. B. Winans, John Winans, G. D. Wise, J. S. Wise, Wolford, Wood, Woodward, Worthington, Yaple, York, Young—251.

Nays—Barksdale, Bisbee, George, Horr, Kean, Libbey, Lyman, Morse, Muldrow, Poland, Ranney, Reed, Rice, Russell, Stone, Van Eaton, Whiting—17.

Not Voting—J. J. Adams, Barbour, Barr, Beach, Belmont, Bingham, Blackburn, Brainerd, Brumm, Buckner, Burleigh, Burnes, Chace, Curtin. Davidson, R. T. Davis, Eaton, Ellis, I. N. Evans, J. H. Evins, Graves, Hammond, Hancock, Harmer, H. H. Hatch, T. J. Henderson, Hoblitzell, Houk, Hutchins, Jordan, Kelley, Kellogg, King, Laird, Maybury, Mayo, Money, Muller, Nicholls, Ochiltree, Paige, Payne, Pettibone, Potter, Rankin, J. S. Robinson, J. W. Stewart, Thompson, Tucker, Wadsworth, Weaver, W. L. Wilson—52.

Bank Circulation and Coinage.—What is commonly known as the McPherson bill passed the Senate, Feb. 28, 1884, after a protracted debate. In beginning the discussion of the measure, Mr. Bayard, of Delaware, said in explanation of its purposes:

"The national-bank note is the best form of paper money, because its payment is absolutely secure. No misfortune can break it. The bank may fail, and yet the note is good and passes current, because the bonds of the United States deposited are immediately available to redeem every dollar in circulation. This security of the noteholder is the foundation of the whole system. No other security can possibly take the place of Government bonds. This has been tried in the United States over and over with disastrous results. Coin reserves in the vaults of banks disappear at the first sign of a panic. Even reserves placed under a board of control of a system of State banks have proved insufficient. Compulsory redemption in deposit banks in commercial cities is equally insecure. Mortgages on real estate, State bonds, and commercial paper have over and over again been found an inadequate security. No security for the noteholder in the custody of banks or bankers is safe against failures and panics. No law or threat of punishment can prevent other creditors of a bank from obtaining a preference over the noteholder, who, in all former systems of banking, is the last to be protected and the first to suffer loss. The highest form of security, that of the Government itself, safely deposited in the custody of the Government, is the only one that has proved effective in favor of the noteholder. This fundamental principle of safe banking is now practically recognized by the chief commercial nations, who alone have the established credit to support and maintain paper money at par with coin, and all other paper money is a forced loan by a government, only justified by extreme necessity.

"The problem we are dealing with grows out of the fact that our Government bonds bear so high a price or yield so low a rate of interest that banking institutions are in doubt whether it is best for them to purchase the bonds necessary to be deposited as security for their circulating notes, or to abandon the issue of such notes. In point of fact it is shown by the Comptroller of the Currency in his last report that the amount of bonds deposited for circulation within one year has diminished $9,583,350, and that this threatens contraction of the national-bank circulation of $60,000,000 per annum (page 10). It appears from the report (page 12) that of the $354,000,000 of bonds deposited by the national banks, $202,000,000 are liable to be paid by the Government on call. The uncertainty and danger of a disturbance and contraction of our currency from this cause are apparent. When any of these bonds are called and paid by the Government they must be replaced by others, or the currency based upon them must be paid and canceled. It is true there are other bonds of the United States outstanding to the amount of over a thousand millions, which are redeemable in from seven to twenty-three years, as follows:

Four per cents, payable July 1, 1907		$737,946,550
Four and a half per cents, payable Sept. 1, 1891		250,000,000
Pacific Railway sixes, payable Sept. 1, 1895	$3,002,000	
Pacific Railway sixes, payable Sept. 1, 1896	8,000,000	
Pacific Railway sixes, payable Sept. 1, 1897	9,712,000	
Pacific Railway sixes, payable Sept. 1, 1898	29,388,000	
Pacific Railway sixes, payable Sept. 1, 1899	14,526,512	
		64,623,512
Total		$1,052,570,062

"These bonds are to-day in market value as follows:

United States four and a halfs, 1891, registered, 118¼; United States four and a halfs, 1891, coupons, 114¼; United States fours, 1907, registered, 123¼; United States fours, 1907, coupons, 123¼; United States currency sixes, 1895, 129¼; United States currency sixes, 1896, 181½; United States currency sixes, 1897, 183¼; United States currency sixes, 1898, 185½; United States currency sixes, 1899, 187½.

"Under existing law, upon the deposit of any of these bonds with the Treasury by a banking association, it may receive circulating notes to the amount of 90 per cent. of the par value of the bonds, and no more. Upon this state of facts it is a matter of doubt depending upon close computation whether a bank, which must be governed by the interest of its stockholders, would be justified in investing $125 in bonds yielding an interest of $4, in order to procure $90 in circulating notes burdened with taxes, redemption in coin, and the certain loss in a few years of $25 of the sum paid for the bonds. It can without circulating notes exercise and enjoy all the business of banking except the issue of notes. Still, the advantages of credit which attach to national banks from the close supervision to which they are subjected, will always induce prudent men to prefer this system of banking even if the circulation gives them no profit, but it is not good policy to make the restraints upon banking or any other business more than enough to secure the certain and prompt payment in coin of its notes on demand.

"The question we have to deal with is whether the present law does not demand of the bank an excess of security, in view of the changed value of the bonds and the reduced interest they bear. When the law limited the issue of circulating notes to 90 per cent. of the par value of bonds deposited, they bore interest at the rate of 5 and 6 per cent., and were sometimes below par in market value. It was at that time the interest of the Government to induce the banks to take and hold as large an amount of bonds as possible. All this is greatly changed. The current interest on bonds is now 3 per cent. or less, and they are sold in the market at rates yielding the investor 2·66 per cent. It is now a matter of indifference to the Government who buys or holds its bonds. The only interest it has in the matter is to hold in its vaults ample security for the redemption of the notes issued. To require security of $125 to pay $90 is unnecessary, and is a questioning by the Government of its own credit and solvency. Upon this I believe we are all agreed. To continue the old limitation would not only be unjust, but would tend to break down the system of national banks and punish our people by unnecessary contraction of their currency."

The vote on the passage of the bill was as follows:

Yeas—Aldrich, Allison, Bayard, Beck, Blair, Brown, Butler, Call, Camden, Colquitt, Conger, Cullom, Dawes, Dolph, Gibson, Groome, Hale, Hampton, Harris, Harrison, Hawley, Jackson, Jones of Florida, Lamar, Logan, McPherson, Mahone, Miller of California, Miller of New York, Morgan, Morrill, Palmer, Pendleton, Pike, Platt, Pugh, Ransom, Riddleberger, Sabin, Sawyer, Van Wyck, Williams, Wilson—43.

NAYS—Bowen, Coke, Garland, George, Jones of Nevada, Kenna, Maxey, Plumb, Slater, Vest, Voorhees, Walker—12.

ABSENT—Anthony, Cameron of Pennsylvania, Cameron of Wisconsin, Cockrell, Edmunds, Fair, Farley, Frye, Gorman, Hill, Hoar, Ingalls, Jonas, Lapham, McMillan, Manderson, Mitchell, Saulsbury, Sewell, Sherman, Vance—21.

Following is the text of the measure:

Be it enacted, etc., That upon any deposit already or hereafter made of any United States bonds bearing interest, in the manner required by law, any national banking association making the same shall be entitled to receive from the Comptroller of the Currency circulating notes of different denominations, in blank, registered and countersigned as provided by law, not exceeding in the whole amount the par value of the bonds deposited: *Provided*, That at no time shall the total amount of such notes issued to any such association exceed the amount at such time actually paid in of its capital stock. And that all laws and parts of laws inconsistent with the provisions of this act be and the same are hereby repealed.

SEC. 2. That associations organized for the purpose of issuing notes payable in gold under the provisions of section 5185 of the Revised Statutes of the United States, upon the deposit of any United States bonds bearing interest with the Treasurer of the United States, shall be entitled to receive circulating notes to the amount and in the manner prescribed in this act for other national banking associations.

The House took no action on the measure.

Bills for the improvement of the coinage, for the removal of restrictions upon the coinage of silver dollars, to suspend the coinage of silver dollars, to limit the coinage of silver dollars, were introduced, but came to naught. The measure which took up the greatest share of the attention of Congress was that for the retirement and the recoinage of the trade-dollars, which, as brought before the House, Feb. 18, 1884, read as follows:

Be it enacted, etc., That until Jan. 1, 1886, United States trade-dollars shall be received at their face value in payment of all dues to the United States, and shall not be again paid out or in any other manner issued.

SEC. 2. That the holder of any United States trade-dollars, on presentation of the same at the office of the Treasurer or any assistant treasurer of the United States, may receive in exchange therefor a like amount and value, dollar for dollar, in standard silver dollars of the United States.

SEC. 3. That the trade-dollars received by, paid to, or deposited with the Treasurer or any assistant treasurer or national depository of the United States shall not be paid out or in any other manner issued, but, at the expense of the United States, shall be transmitted to the coinage mints and recoined into standard silver dollars.

SEC. 4. That the trade-dollars so received at the coinage mints shall be regarded and treated as silver bullion, and, at their bullion value, shall be deducted from the amount of bullion required to be purchased and coined by the act of Feb. 28, 1878.

SEC. 5. That all laws and parts of laws authorizing the coinage and issuance of United States trade-dollars are hereby repealed.

In opening the discussion, Mr. Dowd, of North Carolina, said:

"It will be contended, no doubt, that as the Government did not originally issue this coin upon its own account, but only acted as agent of the owners of the bullion, it did not incur any legal obligation, and is not bound now to redeem it, especially in the hands of speculators, at a price greater than they paid for it, or greater than the market price. Although this proposition would at first view seem plausible, a little reflection, I am sure, will be sufficient to show that such action on the part of the Government now would be not only immoral, but impracticable. It is true the Government did not purchase the bullion, and manufacture and issue this coin as it now issues the standard dollar and fractional silver, but it did place upon it its great seal and stamp, with the legends, devices, and emblems of national honor and good faith, declaring not only that it was worth a hundred cents in the dollar, but also that it should be a legal tender within a certain limit; and then afterward by its own act—first by a joint resolution of the two houses, and then by a law duly enacted—it stripped this coin of the legal-tender quality and degraded it to the condition of bullion while it was in the hands and pockets of the people, and that, too, without any sort of notice. So, whatever may have been the obligation of the Government originally, the fact can not be disputed that the Government is alone responsible for the degradation of this coin, and it can not now with honor, in my judgment, refuse to redeem it at its face value, whether it be in the hands of speculators or of innocent and injured owners. It is not the fault of the holder of this coin, whether he be farmer or merchant, mechanic or banker, that it has lost its value as money. The Government itself is to blame; and whatever wrong it has done, it is bound by the plainest dictates of common justice to cause speedily to be repaired."

The debate drifted into a discussion of the whole question of silver coinage, and the advocates of a double standard and free coinage of silver dollars, as well as those in favor of the limits established in the act of Feb. 18, 1878, attacked the fourth section of the measure, fiercely arguing that its operation would for a time suspend the purchase of the silver bullion which is the direct output of our mines. The test-vote came on a motion to strike out the fourth section, which was carried as follows:

YEAS—Aiken, Alexander, Arnot, Ballentine, Barksdale, Belford, Blanchard, Bland, Blount, Breckinridge, Breitung, Broadhead, Brumm, Budd, Cabell, Caldwell, Carleton, Cassidy, Clardy, Clay, Clements, Cosgrove, S. S. Cox, Crisp, D. B. Culbertson, Curtin, Dibrell, Dockery, Dunn, Eldredge, Ellwood, Ferrell, Finerty, Follett, Forney, Fyan, George, Glascock, Graves, Halsell, Hammond, Hardeman, W. H. Hatch, D. B. Henderson, Henley, Hepburn, Herbert, Hill, Hoblitzell, Holman, Holmes, Hopkins, Houseman, Jeffords, J. H. Jones, J. K. Jones, J. T. Jones, Jordan, Keifer, King, Kleiner, Laird, Lamb, Lanham, Le Fevre, Lovering, Lowry, McCoid, McMillin, Matson, Maybury, J. F. Miller, Mills, Money, Morgan, Muldrow, Murray, Neece, Nicholls, J. J. O'Neill, Paige, Patton, Payson, Pierce, S. W. Peel, Peters, Post, Price, Pryor, Reagan, Reese, Riggs, Robertson, W. E. Robinson, J. H. Rogers, W. F. Rogers, Roseerans, Shaw, Singleton, T. G. Skinner, Springer, Charles Stewart, Stockslager, C. A. Sumner, D. H. Sumner, J. M. Taylor, Thompson, Throckmorton, Tillman, Tully, H. G. Turner, Oscar Turner, Valentine, Vance, Van Eaton, Ward, A. J. Warner, Weaver, Wellborn, Weller, Wilkins, Williams, Willis, W. L. Wilson, E. B. Winans, G. D. Wise, Wolford, Wood, Worthington, Yaple, York—131.

Nays—G. E. Adams, Bagley, Barr, Beach, Belmont, Bingham, Boutelle, F. B. Brewer, J. H. Brewer, T. M. Browne, W. W. Brown, Buckner, J. M. Campbell, Cannon, Chase, Collins, Connolly, W. W. Culbertson, Cullen, Cutcheon, Dargan, G. R. Davis, R. T. Davis, Deuster, Dibble, Dingley, Dorsheimer, Dowd, Dunham, I. N. Evans, Everhart, J. H. Evins, Fiedler, Findlay, Funston, Goff, Greenleaf, Guenther, Hanback, Hancock, Hardy, Harmer, Hart, H. H. Hatch, Haynes, Hemphill, T. J. Henderson, A. S. Hewitt, Hiscock, Hitt, Horr, Houk, Howey, Hunt, Hurd, James, Johnson, B. W. Jones, Kasson, Kean, Kelley, Ketcham, Lacey, Lawrence, Lewis, Libbey, Long, Lyman, McComas, McCormick, Milliken, Mitchell, Morrill, Morrison, Morse, Moulton, Nelson, Nutting, O'Hara, Charles O'Neill, Parker, Payne, S. J. Peelle, Perkins, Phelps, Poland, Potter, Pusey, Ranney, G. W. Ray, Ossian Ray, Reed, Rice, J. S. Robinson, Rockwell, Rowell, Russell, Seymour, Shelley, C. R. Skinner, Slocum, Smalls, Spooner, Spriggs, Steele, Stephenson, J. W. Stewart, Storm, Strait, E. B. Taylor, J. D. Taylor, Tucker, Van Alstyne, Wait, Wakefield, Milo White, Whiting, John Winans, Woodward—119.

Not Voting—J. J. Adams, Anderson, Atkinson, Barbour, Bayne, Bennett, Bisbee, Blackburn, Bowen, Boyle, Brainerd, Buchanan, Burleigh, Burnes, Calkins, Felix Campbell, Candler, Cobb, Converse, Cook, Covington, W. R. Cox, Davidson, L. H. Davis, Duncan, Eaton, Ellis, Elliott, Ermentrout, Foran, Garrison, Geddes, Gibson, Green, G. W. Hewitt, Holton, Hooper, Hutchins, Kellogg, Lore, McAdoo, McKinley, Millard, S. H. Miller, Morey, Muller, Murphy, Mutchler, Oates, Ochiltree, Pettibone, Randall, Rankin, Ryan, Scales, Seney, Smith, Snyder, Stevens, Stone, Struble, Talbott, Thomas, Townshend, Wadsworth, Richard Warner, Washburn, Wemple, J. S. Wise, J. D. White, James Wilson, Young—72.

The bill was then passed April 1st, by a vote of 198 to 45. In the Senate, it was referred to the Finance Committee, and June 20th, Mr. Cameron, of Pennsylvania, moved to discharge the committee from the further consideration of the measure, which motion was rejected by the following vote:

Yeas—Brown, Butler, Call, Cameron of Pennsylvania, Cockrell, Groome, Hampton, Hawley, Jones of Florida, Lapham, Logan, Mitchell, Morgan, Platt, Pugh, Saulsbury, Sawyer, Sewell, Slater, Williams, Wilson—21.

Nays—Aldrich, Allison, Bayard, Beck, Blair, Bowen, Dawes, Edmunds, Fair, Garland, Gibson, Hale, Harris, Harrison, Hill, Hoar, Jonas, Lamar, Maxey, Miller of California, Miller of New York, Morrill, Palmer, Pike, Sherman, Vance, Van Wyck, Voorhees—28.

Absent—Anthony, Camden, Cameron of Wisconsin, Coke, Colquitt, Conger, Cullom, Dolph, Farley, Frye, George, Gorman, Ingalls, Jackson, Jones of Nevada, Kenna, McMillan, McPherson, Mahone, Manderson, Pendleton, Plumb, Ransom, Riddleberger, Sabin, Vest, Walker—27.

Polygamy in Utah.—May 26, 1884, the Senate took up the discussion of the bill to amend an act entitled "An act to amend section 5352 of the Revised Statutes of the United States in reference to bigamy and for other purposes," approved March 22, 1882. The bill was reported by Mr. Hoar, of Massachusetts, from the Committee on the Judiciary. It provides: That in proceedings in any prosecution for bigamy, polygamy, or unlawful cohabitation under any United States statute, the lawful husband or wife of the person accused may be a competent witness, and may be compelled to testify; that in such proceedings an attachment may be issued against any witness on reasonable suspicion that the witness will refuse to obey a subpœna; that any prosecution under any statute of the United States for bigamy, polygamy, or unlawful cohabitation may be commenced at any time within five years next after the commission of the offense; that every ceremony of marriage or in the nature of a marriage ceremony shall be certified in writing by a certificate stating the fact and nature of such ceremony, the full names of each of the parties concerned, and the full name of every officer, priest, and person, and shall be immediately recorded, and the record shall be *prima facie* evidence of the facts stated therein; that every certificate, record, and entry of any kind concerning any ceremony of marriage, or in the nature of a marriage ceremony of any kind, made or kept by any officer, clergyman, priest, or person performing civil or ecclesiastical functions, whether lawful or not, in any Territory of the United States, and any record thereof in any office or place, shall be subject to inspection at all reasonable times by any judge, magistrate, or officer of justice appointed under the authority of the United States; that nothing in this act shall be held to prevent the proof of marriages, whether lawful or unlawful, by any evidence now legally admissible for that purpose; that it shall not be lawful for any female to vote at any election held hereafter in the Territory of Utah; that all laws of the Legislative Assembly of the Territory of Utah which provide for numbering or identifying the votes of the electors at any election in said Territory are hereby disapproved and annulled; that all laws of the Legislature of Utah conferring powers other than those connected with the estates of deceased persons upon the probate courts shall be annulled; that illegitimate children shall not inherit from their fathers; that all laws of the Legislative Assembly of the Territory of Utah which provide that prosecution for adultery can only be commenced on the complaint of the husband or wife are hereby disapproved and annulled; and all prosecutions for adultery may hereafter be instituted in the same way that prosecutions for other crimes are; that the acts of the Legislative Assembly of Utah incorporating, continuing, or providing for the corporation known as the Church of Jesus Christ of Latter-Day Saints, and the ordinance of the so-called General Assembly of the State of Deseret incorporating the Church of Jesus Christ of Latter-Day Saints, so far as the same may now have legal force and validity, are hereby disapproved and annulled; that it shall be the duty of the Attorney-General of the United States to institute and prosecute proceedings to forfeit and escheat to the United States the property of corporations obtained or held in violation of section 3 of the act of Congress approved the 1st day of July, 1862, entitled "An act to punish and prevent the practice of polygamy in the Territories of the United States and other places, and disapproving and annulling certain acts of the Legislative Assembly of the Territory of Utah," or in violation of section 1890 of the Revised Statutes of the United States; that in proceeding for this purpose courts shall have the power to compel the production of books, records, and papers; that the incorporation of the Perpetual Emigration Company shall be annulled; that existing election districts shall be abolished; that adultery shall be punished by imprisonment not exceeding three years and fornication by imprisonment not exceeding six months; that United States Commissioners in Utah shall have the common powers of justices of the peace and the marshals the ordinary powers of a sheriff; that the Supreme Court of the Territory shall have power to appoint a superintendent of schools, and that the use of sectarian books therein shall be prohibited; and that a widow shall be endowed of the third part of all the lands wherein her husband was seized of an estate by inheritance at any time during marriage.

The arguments in favor of such legislation are familiar; but, as the grounds of opposition to it are not so generally understood, we present them as put forward by Mr. Brown, of Georgia:

"Mr. President, the Constitution of the United States expressly declares that Congress shall make no law respecting an establishment of religion or prohibiting the free exercise thereof. Webster, in his dictionary, defines religion as follows:

> First, the recognition of God as an object of worship, love, and obedience; right feelings toward God as rightly apprehended; piety. Second, any system of faith and worship, as the religion of the Turks, of Hindoos, of Christians; true and false religion.

"Then, Mr. President, the Constitution of the United States guarantees to every citizen of the United States the free exercise of his religion, whether he be Christian, Turk, Hindoo, or Mormon, and the Congress of the United States not only has no right by any act to restrict the free exercise of religion, or of religious opinion, but such restriction is absolutely forbidden. But this free exercise of religion which is guaranteed by the Constitution of the United States does not authorize the practice of gross immorality under the cloak or in the name of religion.

"According to the general opinion of the Christian world, and according to the statutes of the Congress of the United States, the practice of polygamy is grossly immoral, and is not only prohibited by statute, but its practice is to be punished by penitentiary imprisonment. The Supreme Court of the United States has sustained this construction of the constitutional provision under consideration. It follows, therefore, that no Mormon or other person in a Territory of the United States can shield himself in any court when arraigned for the practice of polygamy by pleading his religious freedom as a justification. Then, what follows? Those who commit polygamy in the Territories are subject to indictment, trial, and punishment in the courts of the United States. When convicted after a fair trial, it is the duty of the court to sentence the defendant to penitentiary imprisonment, just as it is the duty of the court, upon trial and conviction, to sentence any one found guilty of murder or any other felony.

"The same rule which applies to the class of offenders known as polygamists applies, in like manner, to every other class of violators of the penal statutes of the United States; and the criminals of this class should be arraigned, tried, and convicted as are the criminals of other classes of violators of the penal code. I have repeatedly denounced polygamy on this floor. I consider it grossly immoral—in violation of the laws of God and man. Our law consigns polygamists to the same punishment, when convicted, to which it consigns any other like class of criminals. I admit, in the broadest sense of the term, that no Mormon or other citizen of a Territory can defend himself under an indictment for polygamy by pleading his right to the free exercise of religion.

"But, while this is true, I utterly deny that the Congress of the United States, or any department or officer of the Government of the United States, has any power to punish a Mormon or any other citizen of the Territory by imprisoning his person or confiscating his property, or depriving him of his right to vote or hold office, or of any other civil right, for bigamy or polygamy or any other crime, without presentment or indictment of a grand jury and trial and conviction by due course of law. And I utterly repudiate the right of the Government of the United States, or any department or officer thereof, to ascertain the guilt of any such offender by the application of a test-oath, or to deny to any one the exercise of any right of a citizen on account of his or her refusal to take such oath, or to be interrogated under oath as to his or her guilt or innocence.

"And, while it is true that the Mormon who commits polygamy is subject to indictment, conviction, and punishment, as any other criminal, it is equally true that the 100,000 Mormons, who, as the report of the Utah Commissioners appointed by the President shows, do not practice polygamy are protected by the provisions of the Constitution already referred to in the free exercise of their religious opinions. And no Mormon can be convicted or punished, or his goods seized, or his property confiscated, or his right to vote or hold office abridged, on account of any opinion he may entertain on the subject of polygamy, if he does not engage in its practice. A church or sect whose religious faith is that the Old Testament practice of polygamy is right and the Christian practice of monogamy wrong, has as much right to the free exercise of its opinions as any other in the United States.

"I feel fully authorized to assume the position as founded upon the rock of the authority of the Saviour himself, and firmly imbedded in the doctrines of Christianity, that no husband shall put away his wife and no wife shall put away her husband except for the cause of fornication, and that if either puts away the other except for that cause and marries another, or they both marry others, they are guilty of adultery, and the second marriage according to the divine law is a nullity, and the parties are still husband and wife, refusing to discharge the duties of husband and wife toward each other, and living in adultery with other persons. Then there is no escape from the conclusion that, according to the divine law, every man who has divorced his wife except for fornication, and married another, or has married a second wife without divorce, is neglecting his legal wife and living in adultery with another woman. And every man who has married a woman who was illegally divorced from her husband is living in adultery with the wife of another man. And if the wife puts away the husband for like cause and marries another, she, too, has a living husband, and is living in adultery with another man. And each having a plurality of wives or husbands living at the same time is living in the practice of bigamy or polygamy or polyandry. I apprehend this position can not be controverted by any one who admits Christ to be the Son of God and the divine lawgiver. All who deny his divinity and authority may reach a different conclusion. But those who deny Christ's divinity have no sufficient authority for monogamy.

"It follows, then, that a man, whether he lives in Massachusetts or Georgia, who has left his wife without a divorce, or has divorced his wife, except for fornication, and married another, and is now living with her, is a bigamist, and is living in a state of adultery, as much so as is a Mormon in Salt Lake City who has married two wives, under their system, and lives and cohabits with both; the only difference being that the Mormon relation is condemned by a statute passed by the Congress of the United States, while the bigamy practiced by the citizen of Georgia or the citizen of Massachusetts is legalized, in the very teeth of the divine law, by the authority of the State. They stand side by side alike condemned by the divine lawgiver of the universe. They are both bigamists, and they both live in a state of adultery; and the moral guilt of the husband in Utah who lives with two wives, one of whom he has no right to have, is no greater than the moral guilt of the husband who in Georgia or in Massachusetts has two wives and cohabits in a state of adultery with the one he has no right to have.

"Under the Mormon system the husband is married to a plurality of wives. He cohabits with them all as his wives, and they are generally prolific of offspring. According to the law of his church he believes his offspring are legal, and it is his duty to care for and support them all alike. The mother of each is regarded as his legal wife, and each of the children is regarded as his son or daughter. The family is sustained and kept together according to the old patriarchal usage. The people are an industrious, laborious people; they are a thrifty people. No beggars or tramps are found in the streets. Pauperism is but little known in the Territory. Everybody seems to have plenty to do, and each person is at work to accomplish the task before him. What they call adultery, or the cohabitation by a Mormon husband with a woman to whom he is not married according to the rites of their church, is regarded as a great crime. And I believe it is generally admitted that prior to the settlement of Gentiles, as they term outside people, among them, neither prostitutes nor houses of ill-fame were known to any extent in the Territory.

"But all this thrift, and order, and labor, and prosperity are, in my opinion, insufficient to justify the practice of polygamy, which is allowed by the Mormon church. I refer to it only to contrast their system of bigamy and prostitution with our own system. Go to the other parts of the Union, where Mormonism is not known, and you will find it unfortunately true that prostitution is practiced to an alarming extent. In many States of the Union houses for the practice of it are either licensed by the public or permitted without interference by the police. Large numbers of illegitimate children are born without the protection either to the mother or child given to the plural wife and her offspring in Utah. In most instances the mother and child are discarded by the child's father, and they are cast together into the streets to make their living as best they can. I have not the statistics before me to show the exact proportion that the prostitutes bear to the population of any of our States, or to show the percentage of children born in the United States that are illegitimate. Our census reports are defective in this particular, but both classes are large.

"Twenty-five years ago it was estimated that there were more than 6,000 prostitutes in the city of New York alone. Since that time the city has more than doubled in population, and I presume we have made fearful strides of increase in this pernicious practice. It is no doubt safe to assume the position that there are 12,000 prostitutes in that great city at the present time. And in the other cities of the Union, something like the same number in proportion to population. If this number is regarded too startling for belief, I beg to call the attention of the Senate to the fact that it is not so large as the statistics of some other countries show in proportion to population. I find it stated as a statistical fact that in the province of Brandenburg there were 10·9 illegitimate children out of every 100.

"In the province of Schleswig-Holstein there were 9·6 out of every 100; in Berlin, there were 18⅝ out of every 100; in Magdeburg, there were 9·6 out of 100; in Hanover, 8·9. The same author gives the proportion which the prostitutes bear to the inhabitants of certain European cities as follows: In Hamburg, 1 to 48 inhabitants; in Berlin, 1 to 62; in London, 1 to 91; in Vienna, 1 to 159; in Munich, 1 to 222; in Dresden, 1 to 286; in Paris, 1 to 247; in Brussels, 1 to 275; and in Strasburg, 1 to 302. Unfortunately, we have no reliable statistics in this country, as they have in Europe, by which we can give the correct proportion of population who are either illegitimate or prostitutes. But I fear it may safely be assumed that in proportion to population we are but little behind European countries in laxity of morals in this regard."

The bill was passed by the Senate, June 18, by the following vote:

YEAS—Allison, Beck, Bowen, Cameron of Wisconsin, Colquitt, Conger, Cullom, Dawes, Dolph, Edmunds, Fair, Frye, Garland, Harrison, Ingalls, Jackson, Jones of Florida, Jones of Nevada, Lapham, McMillan, McPherson, Mahone, Manderson, Miller of California, Mitchell, Morrill, Palmer, Pike, Pugh, Riddleberger, Sawyer, Voorhees, Wilson—33.

NAYS—Bayard, Brown, Coke, George, Hampton, Jonas, Kenna, Lamar, Maxey, Morgan, Pendleton, Ransom, Vance, Vest, Walker—15.

ABSENT—Aldrich, Anthony, Blair, Butler, Call, Camden, Cameron of Pennsylvania, Cockrell, Farley, Gibson, Gorman, Groome, Hale, Harris, Hawley, Hill, Hoar, Logan, Miller of New York, Platt, Plumb, Sabin, Saulsbury, Sewell, Sherman, Slater, Van Wyck, Williams—28.

The House took no action on the measure.

National Aid to Common Schools.—The Senate gave much time to the consideration of a bill to aid in the establishment and temporary support of common schools. It was introduced by Mr. Blair, of New Hampshire, as a substitute for a measure offered by him in the last Congress, and referred to the committee on education and labor, and reads as follows:

That for ten years after the passage of this act there shall be annually appropriated from the money in the Treasury the following sums, to wit: The first year the sum of $15,000,000, the second year the sum of $14,000,000, the third year the sum of $13,000,000, and thereafter a sum diminished $1,000,000 yearly from the sum last appropriated until ten annual appropriations shall have been made, when all appropriations under this act shall cease; which several sums shall be expended to secure the benefits of common-school education to all the children of the school age mentioned hereafter living in the United States.

SEC. 2. That such money shall annually be divided among and paid out in the several States and Territories in that proportion which the whole number of persons in each who, being of the age of ten years and over, can not read and write bears to the whole number of such persons in the United States; and until otherwise provided such computation shall be made according to the official returns of the census of 1880.

SEC. 3. That the Secretary of the Interior, at the close of each fiscal year, shall ascertain the total amount of the school fund to which the States and Territories and the District of Columbia are entitled under the provisions of this act, and shall certify the same to the Secretary of the Treasury. That upon the receipt of such certificate the Secretary of the Treasury shall, on or before the 31st day of July of each year, apportion the said total sum so certified among the several States and Territories and the District of Columbia upon the basis of population and illiteracy specified in the second section of this act.

SEC. 4. That the amount so apportioned to each State and Territory and to the District of Columbia shall be paid, upon the warrant of the Commissioner of Education, countersigned by the Secretary of the Interior, out of the Treasury of the United States, to the treasurer of the State, Territory, or District, or to such officer as shall be designated by the laws of such State, Territory, or District to receive, account for, and pay over the same to the several school districts entitled thereto under said apportionment. The term "school district" as used in this section shall include cities, towns, parishes, or such other corporations as by law are clothed with the power of maintaining common schools: *Provided*, That such distribution or payment, after the receipt of said fund by the State, Territory, or District, may be made to any officer designated by the laws of the State, Territory, or District for the disbursement of the school funds to the teachers employed in such schools.

SEC. 5. That the instruction in the common schools wherein these moneys shall be expended shall include the art of reading, writing, and speaking the English language, arithmetic, geography, history of the United States, and such other branches of useful knowledge as may be taught under local laws, and shall include, whenever practicable, instruction in the arts of industry, and the instruction of females in such branches of technical or industrial education as are suited to their sex, which instruction shall be free to all, without distinction of race, color, nativity, or condition in life: *Provided*, That nothing herein shall deprive children of different races, living in the same community but attending separate schools, from receiving the benefits of this act the same as though the attendance therein were without distinction of race.

SEC. 6. The money appropriated and apportioned under the provisions of this act to the use of any Territory shall be applied to the use of common and industrial schools therein by the Secretary of the Interior.

SEC. 7. That the District of Columbia shall be entitled to the privileges of a Territory under the provisions of this act, but its existing laws and school authorities shall not be affected by the operation of this act. The Commissioner of Education shall be charged with the duty of superintending the distribution of its allotment, and shall make full report of his doings to the Secretary of the Interior.

SEC. 8. That the design of this act not being to establish an independent system of schools, but rather to aid for the time being in the development and maintenance of the school system established by local government, and which must eventually be wholly maintained by the States and Territories wherein they exist, it is hereby provided that no part of the money appropriated under this act shall be paid out in any State or Territory which shall not, during the first five years of the operation of this act, annually expend for the maintenance of common schools at least one third of the sum which shall be allotted to it under the provisions hereof, and during the second five years of its operation a sum at least equal to the whole amount it shall be entitled to receive under this act.

SEC. 9. That a part of the money apportioned to each State or Territory, not exceeding one tenth thereof, may yearly be applied to the education of teachers for the common schools therein, which sum may be expended in maintaining institutes or temporary training-schools, or in extending opportunities for normal or other instruction to competent and suitable persons, of any color, who are without necessary means to qualify themselves for teaching, and who shall agree in writing to devote themselves exclusively, for at least one year after leaving such training-schools, to teach in the common schools, for such compensation as may be paid other teachers therein.

SEC. 10. That no part of the educational fund allotted to any State or Territory or the District of Columbia shall be used for the erection of school-houses or school-buildings of any description, nor for rent of the same.

SEC. 11. That the moneys distributed under the provisions of this act shall be used in the school districts of the several States and Territories in such way as to provide, as near as may be, for the equalization of school privileges to all the children of the school age prescribed by the law of the State or Territory wherein the expenditure shall be made, thereby giving to each child an opportunity for common-school and, so far as may be, of industrial education; and to this end existing public schools, not sectarian in character, may be aided, and new ones may be established, as may be deemed best, in the several localities.

SEC. 12. That any State in which the number of persons ten years of age and upward who can not read and write is not over 5 per cent. of the whole population thereof shall have the right to receive its allotment and to apply the same for the promotion of common-school and industrial education, or the education of teachers therein, in such way as the Legislature of such State shall provide.

SEC. 13. That the Secretary of the Interior shall receive from the Governor of each State and Territory a report, to be made by or through such Governor on or before the 30th day of June of each year, giving a detailed account of the payments or disbursements made of the school fund apportioned to his State or Territory and received by the State or Territorial treasurer or officer under section 4 of this act, and of the balance in the hands of such treasurer or officer withheld, unclaimed, or for any cause unpaid or unexpended, and also the amount expended in such State or Territory as required by section 8 of this act, and also of the number of public, common, and industrial schools, the number of teachers employed, the total number of children taught during the year and in what branches instructed, the average daily attendance, and the relative number of white and colored children, and the number of months in each year schools have been maintained in each school district, and such other information in relation to the use of the school fund and the condition of common-school education as the Secretary of the Interior may require. And if any State or Territory shall misapply or allow to be misapplied, or in any manner appropriated or used other than for the purposes herein required, the funds, or any part thereof, received under the provisions of this act, or shall fail to comply with the conditions herein prescribed, or to report as herein provided, through its proper officers, the disposition thereof, such State or Territory shall forfeit its right to any subsequent apportionment by virtue hereof until the full amount so misapplied, lost, or misappropriated shall have been replaced by such State or Territory and applied as herein required, and until such report shall have been made: *Provided*, That if the public schools in any State admit pupils not within the ages herein specified it shall not be deemed a failure to comply with the conditions herein.

SEC. 14. That on or before the 1st day of September of each year the Secretary of the Interior shall report to the President of the United States whether any State or Territory or the District of Columbia has forfeited its right to receive its apportionment under this act, and how forfeited, and whether he has withheld such allotment on account of such forfeiture; and each State and Territory and the District of Columbia from which such apportionment shall be withheld shall have the right to appeal from such decision of the Secretary of the Interior to Congress; and if the next Congress shall not direct such share to be paid, it shall be added to the general educational fund for distribution among the other States and the Territories and District of Columbia which shall be entitled to the benefit of the provisions of this act.

SEC. 15. That the Secretary of the Interior shall be charged with the practical administration of this act in the Territories and the District of Columbia, through the Commissioner of Education, who shall report annually to Congress its practical operation, and briefly the condition of common and industrial education as affected thereby throughout the country, which report shall be transmitted to Congress by the Secretary of the Interior, accompanying the report of his department.

Mr. Blair made the following statement of facts as a justification of the proposed measure: "In 1880 there were 105,465 Chinese, 148 Japanese, and 66,407 civilized Indians. I am aware of no means by which the actual number of voters in the United States can be ascertained, but if we add to the total of male population over twenty-one years of age one eighth of the total of 1880 we have 1,608,798, and in all at this time 14,484,142. Assuming one half the foreign-born males of voting age to be naturalized, we have a voting element as follows, making allowance for increase of one eighth in each element since the census was taken: Native-born white voters, 9,203,332; foreign-born white voters, 1,728,274; colored (excluding Chinese, Japanese, and Indians), 1,479,739; total voting population of the United States in 1884, 12,411,345; or in round numbers there will be 12,500,000 men whose ballots will or may decide the next presidential election.

"The percentage of illiterate white males over twenty-one years of age by the census of 1880 is 7·8, and of colored the rate is 68·7. There is no perceptible change in this percentage for the better, judging from the fact that the illiterate population increased, according to a statement of the Commissioner of Education, between the years 1870 and 1880, 581,814 persons. There is some confusion in the data, but I think there was an increase during that period substantially as estimated by the commissioner. We have then at the present time an illiterate white voting population of 852,665; illiterate colored voters, 1,016,580; total illiterate voters, 1,869,245.

"I do not believe that more than two thirds, or at the most three fourths, of the voting population of this country is to-day in possession of a degree of proficiency in the arts of reading and writing that qualifies them, through the use of those arts, to exercise the right of suffrage more intelligently than do total illiterates. The school education of great multitudes is nominal, not real.

"I purposely omit further data as to the distribution of the illiterate vote. If it were uniformly dispersed it would be less dangerous. But concentrated as it is in masses at points along the line, while intelligence can never be too strong anywhere, and considering that a majority of one in Florida or in Oregon may decide the most important of national elections and determine the future history of the whole country, I for one find it impossible to sleep in peace over this volcano.

"As will be seen by reference to tables in the report of the committee and to the census, the school age varies greatly in different States. In some it is from five to fifteen, in others from four to twenty-one, and with great diversity between those extremes. In a speech in support of a measure, substantially the same as this, made in the Senate June 15, 1882, after careful consideration, I stated the number of our population who should be in schools as, in my opinion, 18,000,000. I believe it to be now 20,000,000. By the census of 1880 the number within the school ages was 15,303,535. Of this number were then enrolled, that is, their names were on some list of pupils, 9,780,773, leaving 5,522,762 not attending school anywhere. But there were 567,160 enrolled in private schools, making a total of 10,347,933 enrolled in all schools of the country, both public and private, and leaving 4,955,602, or nearly one third of the legal school population, not attending either public or private places of instruction.

"If, now, the total enrolled in public and private schools be increased one eighth, as in previous calculations, we have a present school population in process of mental training of 11,641,424. If I am substantially correct in assuming a present population of 20,000,000 who should be either in public or private schools, from our total of at least 56,000,000 now living in this country, there will remain 8,358,576 who do not attend schools of any kind whatever, unless it may be of liberal or professional training. Making all allowances which can be reasonably claimed, there must be 8,000,000 of less than twenty-one years of age who are not enjoying school privileges of any description whatever. But look still further, in order that we may judge of the efficiency of our system in dealing with those actually enrolled. By the census, out of the 9,780,773 on the public-school registers, there was an average daily attendance of 5,804,993; so that the real fact is that the net educational result is the same as though the latter number had attended the whole school period yearly, which is perhaps five months of the twelve in the whole country, and 9,499,542 had not received a single hour of school instruction for the year."

The bill as submitted was amended by changing the term of its operation to eight years instead of ten, and appropriations to seven million for the first year, ten for the second, fifteen for the third, thirteen for the fourth, eleven for the fifth, nine for the sixth, seven for the seventh, and five for the eighth. It was also amended by the insertion of a clause restricting the appropriations to non-sectarian schools and by the substituting for the third section one providing for careful reports from the Governor of each State and Territory in its school system and a statement as to whether there is any discrimination therein on account of race or color, over and above the establishment of separate schools, the filing of such a report with the Secretary of the Interior to be preliminary to the grant of aid. The twelfth section was stricken out, and a clause added to the thirteenth, giving the Secretary of the Interior authority to hear and examine complaints of misappropriation or unjust discrimination in the use of funds granted under the act. The bill as amended passed the Senate April 7, by the following vote:

Yeas—Blair, Brown, Call, Cameron of Wisconsin, Colquitt, Conger, Cullom, Dawes, Dolph, Edmunds, Frye, Garland, George, Hampton, Harrison, Hoar, Jackson, Jonas, Jones of Florida, Kenna, Logan, McMillan, Manderson, Miller of New York, Morrill, Pike, Platt, Pugh, Ransom, Riddleberger, Sawyer, Williams, Wilson—33.

Nays — Bayard, Butler, Coke, Groome, Harris, Hawley, Maxey, Miller of California, Morgan, Pendleton, Saulsbury—11.

Absent—Aldrich, Allison, Anthony, Beck, Bowen, Camden, Cameron of Pennsylvania, Cockrell, Fair, Farley, Gibson, Gorman, Hale, Hill, Ingalls, Jones of Nevada, Lamar, Lapham, McPherson, Mahone, Mitchell, Palmer, Plumb, Sabin, Sewell, Sherman, Slater, Vance, Van Wyck, Vest, Voorhees, Walker—32.

The House took no action on the measure.

Pensions.—In the House, January 24, 1884, a bill was reported from the Committee on Pensions granting pensions to soldiers and sailors who had served in the Mexican, the Creek, the Seminole, and the Black Hawk wars. Mr. Hewitt, of Alabama, who was in charge of it, endeavored to have it considered July 2 and 3, but on both days the House refused to take it up. March 3, Mr. Townshend, of Illinois, moved to suspend the rules and pass a bill granting pensions to the soldiers and sailors of the Mexican War. The motion was agreed to, 227 to 46. The bill is as follows:

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the Secretary of the Interior be and he is hereby authorized and directed to place on the pension-roll the names of the surviving officers and enlisted men, including marines, militia, and volunteers, of the military and naval services of the United States who served sixty days in the war of 1846 and 1847 and 1848 with Mexico, or who, being enlisted as aforesaid, actually served with the Army or Navy of the United States in Mexico in said war, or were actually engaged in a battle in said war, and were honorably discharged, and to such other officers and soldiers and sailors as may have been personally named in any resolution of Congress for any specific service in said wars, although their term of service may have been less than sixty days, and the surviving widows of such officers and enlisted men as were married to such officers or soldiers or sailors prior to the discharge of such officers and enlisted men: *Provided*, That such widows have not remarried: *And provided further*, That this act shall not apply to any person not a citizen of the United States.

Section 2. That pensions under this act shall be at the rate of $8 per month, and payable only from and after the passage of this act for and during the natural lives of the persons entitled thereto.

SEC. 3. That before the name of any person shall be placed on the pension-roll under this act proof shall be made, under such rules and regulations as the Secretary of the Interior may prescribe, of the right of the applicant to a pension; and any person who shall falsely and corruptly take any oath required under this act shall be deemed guilty of perjury; and the Secretary of the Interior shall cause to be stricken from the pension-roll the name of any person whenever it shall be made to appear by proof satisfactory to him that such name was put upon such roll through false and fraudulent representations, and that such person is not entitled to a pension under this act. The loss of the certificate of discharge shall not deprive any person of the benefits of this act, but other evidence of service performed and of an honorable discharge may be deemed sufficient.

SEC. 4. That the pension laws now in force which are not inconsistent or in conflict with this act are hereby made a part of this act, so far as they may be applicable thereto.

SEC. 5. That it shall be unlawful for any attorney, claim agent, or any other person to demand or receive a fee greater than $10 for services rendered in behalf of a claimant under this act, to be paid when such claim is allowed.

SEC. 6. That section 4716 of the Revised Statutes is hereby repealed so far as the same relates to this act or to pensioners under this act.

SEC. 7. That the provisions of this act shall not apply to any person while under the political disabilities imposed by the fourteenth amendment to the Constitution of the United States.

This measure was taken up in the Senate, May 28, and the details of it were thoroughly discussed. Several amendments were offered and rejected, but the following changes were made: Service for fourteen days, or participation in battle, were made requisites for the granting of a pension. Every one entitled to a pension by service, or widow of one so entitled, who has arrived at the age of sixty-two, or may hereafter arrive at that age, and be dependent or disabled, shall receive a pension, unless the disability was incurred in aiding or abetting the late rebellion against the United States. Six new sections were added to the bill, providing pensions for those enumerated in the classes specified in the pension laws who have served three months in the United States Army or Navy during the civil war, were honorably discharged, and have since, without fault of their own, become disabled while dependent for support upon their own labor; providing for an increase of the rate of pensions for widows and minor children of soldiers and sailors killed or disabled in the civil war; providing that widows and minor children of any individual pensioned for a disability contracted in the military or naval service of the United States, who has died, or may hereafter die, shall be entitled to a pension in their own right without proving that his death was due to his service, and in cases where the children are of unsound mind, or physically helpless, the pension shall continue without limitation of age; providing that dependent parents receiving a pension of $8 a month shall receive $12; and providing that in applications under the general pension laws the fact that the applicant was regularly enlisted and mustered into the service shall be *prima facie* evidence that he was sound at the time. June 24, the bill was passed by the following vote:

YEAS—Allison, Blair, Bowen, Butler, Cameron of Pennsylvania, Cameron of Wisconsin, Conger, Dawes, Dolph, Frye, George, Hale, Harrison, Hill, Ingalls, Jones of Nevada, Lamar, Lapham, Logan, McMillan, Mahone, Manderson, Miller of California, Miller of New York, Mitchell, Morrill, Palmer, Pike, Platt, Plumb, Ransom, Riddleberger, Sawyer, Sewell, Sherman, Van Wyck, Wilson—37.

NAYS—Bayard, Beck, Brown, Call, Cockrell, Coke, Colquitt, Edmunds, Fair, Farley, Garland, Groome, Hampton, Hawley, Jackson, Jonas, Jones of Florida, Maxey, Morgan, Pendleton, Pugh, Saulsbury, Slater, Vance, Vest, Walker, Williams—27.

ABSENT—Aldrich, Anthony, Camden, Cullom, Gibson, Gorman, Harris, Hoar, Kenna, McPherson, Sabin, Voorhees—12.

The House was not ready to accept the bill as it came from the hands of the Senate, and, after concurring in some of the amendments, allowed the measure to drop, July 5.

A bill to increase the pensions of widows, minor children, and dependents of deceased soldiers, from $8 to $12 a month, was considered in the House, but made no progress; another providing pensions in case of disability, passed the House, April 21, but was not considered in the Senate.

The Lasker Incident.—On the sudden death of the distinguished German Liberal, Eduard Lasker, in New York, Mr. Ochiltree, of Texas, offered the following resolutions in the House, and they were passed January 9, 1884:

Resolved, That this House has heard with deep regret of the death of the eminent German statesman, Eduard Lasker.

That his loss is not alone to be mourned by the people of his native land, where his firm and constant exposition of and devotion to free and liberal ideas have materially advanced the social, political, and economic condition of those peoples, but by the lovers of liberty throughout the world.

That a copy of these resolutions be forwarded to the family of the deceased, as well as to the minister of the United States resident at the capital of the German Empire, to be by him communicated through the legitimate channel to the presiding officer of the legislative body of which he was a member.

Prince Bismarck refused to transmit the resolutions to the German Reichstag, but returned them to the Department of State. March 10, the following resolutions were offered in the House, and referred to the Committee on Foreign Relations:

Whereas, It has come to the knowledge of this House that a communication from it to the Parliament of the German Empire, entirely friendly in its intent, respectful in its character, and sent through the regular channels of international communication, has been arbitrarily intercepted and returned to the Department of State of the United States by the person now holding the position of Chancellor of the German Empire; therefore,

Resolved, That this House can not but express its surprise and regret that it should be even temporarily within the power of a single too-powerful subject to interfere with such a simple, natural, and spontaneous expression of kindly feeling between two great nations, and thus to detract from the position and prestige of the crown, on one hand, and from the rights of the mandataries of the people, on the other.

Resolved, That this House does hereby reiterate the expression of its sincere regret at the death of the late Eduard Lasker, and of its sympathy with the Parliament of the German Empire, of which for so many years he was a distinguished member.

March 19 the committee submitted the following report:

The Committee on Foreign Affairs, to which was referred the message of the President of the United States, together with the correspondence of the State Department and certain resolutions submitted in the House, all referring to the death of Dr. Eduard Lasker, late an eminent citizen or subject of the German Empire, has considered the various matters referred to it, and reports:

The resolutions adopted by the House on the 9th of January were intended to express to the German Government and people sympathy for the death of an eminent man who died in this country, who had served his native land as a member of its highest legislative body, and as a tribute of respect to his memory.

While your committee is of opinion that said resolutions should have been received and transmitted in the same spirit of cordiality and good-will by which they were prompted, it refrains from expressing an opinion as to whether the course pursued by the authorities of the German Empire in regard to them was or was not in accordance with the proprieties governing the internal regulations of said empire, as a matter not within its province of consideration.

The dignified position assumed by the Department of State merits and will command the confidence of the country, fully sustaining the high character which that department has maintained since the organization of the Federal Government.

As to the resolutions offered on the 10th day of March, your committee is of the opinion that they contain language, under present circumstances, superfluous and irrelevant, and not necessary or proper to vindicate the character or dignity of this House.

Your committee, therefore, reports back said resolutions, with the recommendation that they lie upon the table, and reports the following resolutions, with the recommendation that they be adopted as a substitute therefor:

Resolved, That the resolutions referring to the death of Dr. Eduard Lasker, adopted by this House January 9 last, were intended as a tribute of respect to the memory of an eminent foreign statesman who had died within the United States, and an expression of sympathy with the German people, of whom he had been an honored representative.

Resolved, That the House, having no official concern with the relations between the executive and legislative branches of the German Government, does not deem it requisite to its dignity to criticise the manner of the reception of the resolutions, or the circumstances which prevented their reaching their destination after they had been communicated through the proper channel to the German Government.

The resolutions reported as a substitute for those offered March 10 were then adopted by the House.

Tax on Spirits distilled from Grain.—April 7, 1884, Mr. Thompson, of Kentucky, moved to suspend the rules and pass the following:

Resolved, That it is unwise and inexpedient for the present Congress to abolish or reduce the tax upon spirits distilled from grain.

The motion was carried, 179 to 33.

Civil-Service Reform.—April 21, 1884, Mr. Mutchler, of Pennsylvania, from the select committee on reform in the civil service, moved to suspend the rules and pass the following bill:

Be it enacted, etc., That all those portions of the following sections of the Revised Statutes of the United States, to wit, sections 769, 1864, 2217, 2244, 2613, and 3830, which fixed the term of offices of the officers therein mentioned at four years, and all other acts and parts of acts in so far as they create or declare a term of four years on the part of any officers in any of the said sections mentioned, are hereby repealed: *Provided, however*, That the provisions of this act shall not apply to any of the officers mentioned in the said sections now in office, nor shall their term of office be in any wise affected by the provisions of this act.

SECTION 2. That the Chief-Justice and the Associate Justices of the Supreme Court of every Territory hereafter to be appointed shall be appointed to hold office during good behavior, or until the Territory shall be admitted as a State and the State government shall go into operation, and all the other officers whose term of office is abolished by the provisions of this act shall be commissioned to hold office, and shall hold office, during the pleasure of the President.

SEC. 3. That every person hereafter appointed to any office of which the term is abolished by the provisions of this act, and of which the incumbent is now required to give an official bond, shall, before entering upon the duties of his office, give a bond to the United States, with one or more sufficient sureties, for the true and faithful discharge of the duties thereof according to law. The said bonds shall be in such form, and under such penalty, and approved in such manner, and filed in such offices, as is now provided by law in the case of each of such officers; and such bonds shall be renewed once in three years, under such regulations as may be prescribed by the officers required to approve the same as are not inconsistent with the provisions of this act.

The motion failed by a vote of 99 to 146.

Miscellaneous.—A bill repealing all laws providing for the pre-emption of public lands, and all laws allowing entries for timber-culture, was passed by the House June 24, but was not considered by the Senate. The Lowell bankruptcy bill passed the Senate April 21, by a vote of 32 to 15. It came up in the House May 19, and Mr. Collins, of Massachusetts, who had charge of it, moved to make it a special order for June 10, but the motion was defeated by a vote of 137 to 92, less than the requisite two thirds. May 19, in the House, Mr. Hurd moved to suspend the rules, and pass a bill removing the duties on works of art discriminating against foreign artists. The motion was lost by a vote of 52 to 178. June 19, the House passed a bill to prohibit the importation of convict-labor, but the Senate failed to consider it.

Proposed Constitutional Amendments.—Schemes to amend the Constitution have little practical value, but there was no lack of them at the first session of the Forty-eighth Congress. In the Senate, amendments on different topics were proposed as follows: December 4, an amendment giving Congress the power to protect, by appropriate legislation, all citizens in exercise and enjoyment of their rights, privileges, and immunities; December 5, an amendment forbidding the granting of extra compensation to Government contractors, and authorizing the President to disapprove separate items in appropriation bills; the same day, another amendment prohibiting the manufacture and sale of intoxicating liquors; December 6, an amendment prohibiting the denial or abridgment of a citizen's right to vote on account of nativity; the same day, another amendment prohibiting the denial of the right to vote on account of sex; December 10, an amendment providing for the election of postmasters, revenue collectors, judges, marshals, and United States district attorneys by the people; March 10, an amendment providing that legal-tender notes shall never be issued in excess of $350,000,000 unless by a two-third vote of each House of Congress; March 12, an amendment changing the presidential term to six years, and making the President ineligible thereafter. In the House amendments were proposed as follows: December 10, an amendment declaring that the House of Representatives shall not be composed of more than 350 members; the same day, another amendment forbidding special, local, or private legislation by Congress; the same day, a third amendment directed against bigamy and polygamy; the same day, a fourth amendment changing the method of choosing electors and regulating the counting of electoral votes; the same day, a fifth amendment forbidding the appropriation of any sum in excess of $10,000 by Congress, unless by a majority vote of all the members of each house; December 11, an amendment against contract convict-labor; the same day, another amendment providing that every measure passed by Congress be either approved or disapproved by the President, and prescribing the rules for passing a measure over the presidential veto; the same day, a third amendment providing that direct taxes, when levied by the United States, shall be apportioned according to the value of property in each State, Territory, and the District of Columbia; January 7, an amendment providing for the election of Senators by the people; the same day, another amendment giving Congress the power to limit the hours of labor in manufactories; January 8, an amendment authorizing Congress to establish uniform marriage and divorce laws in the several States and Territories; the same day, another amendment prohibiting the lending of the credit of the United States to any private corporation; the same day, a third amendment limiting the time for the presentation of claims; the same day, a fourth amendment regulating the approval and disapproval of bills by the President, and preventing any bill from becoming a law after the adjournment of Congress; the same day, a fifth amendment prohibiting Congress and the State Legislatures from making laws prohibiting or abridging the manufacture or sale of any article of merchandise composed or prepared in whole or in part of any product of the soil; the same day, a sixth amendment providing that a majority vote shall be sufficient to pass a bill over the President's veto; February 4, an amendment allowing an export tax on unmanufactured cotton; February 11, an amendment providing for the election of President and Vice-President by a direct vote of the people; February 25, an amendment providing that the clause forbidding a State to pass a law impairing the nature of a contract, shall not restrict the taxing power of the State; March 10, an amendment denying the right of Congress to make anything but gold and silver legal tender, except after a declaration of war; the same day, another amendment denying this right to Congress absolutely. And finally, April 14, a joint resolution was submitted providing for the calling of a constitutional convention. In making note of the proposed amendments every resolution has not been mentioned, but simply every distinct point chosen for amendment. Sometimes two, three, or four different amendments were proposed, covering the same point.

Bills Passed.—The following bills and resolutions, other than private ones, were passed during the session:

To authorize the construction of a bridge for the transportation of street-cars, wagons, and other vehicles, horses and other animals, and pedestrians, over the Rio Grande river between the cities of Eagle Pass, Texas, and Piedras Negras, Mexico.

To enable the State of Colorado to take lands in lieu of the sixteenth and thirty-sixth sections found to be mineral lands, and to secure to the State of Colorado the benefit of the act of July 2, 1862, entitled "An act donating public lands to the several States and Territories which may provide colleges for the benefit of agriculture and the mechanic arts."

Providing a civil government for the Territory of Alaska.

To repeal section 8 of an act entitled "An act to accept and ratify the agreement submitted by the confederated bands of Ute Indians in Colorado for the sale of their reservation in said State, and for other purposes, and to make the necessary appropriations for carrying out the same," approved June 15, 1880.

To extend the duration of the Court of Commissioners of Alabama claims, and for other purposes.

Donating a part of the abandoned military reservation at Fort Smith, Arkansas, to the city of Fort Smith, for the use and benefit of the free public schools thereof, and for other purposes.

To give the assent of Congress to the construction of a free bridge by the Mayor and City Council of Nashville, Tenn., over the Cumberland river.

To authorize the construction of a bridge across the Missouri river at the city of Leavenworth, Kansas.

To repeal section 1 of the act entitled "An act making a grant of lands in alternate sections to aid in the construction and extension of the Iron Mountain Railroad, from Pilot Knob, in the State of Missouri, to Helena, in Arkansas," approved July 4, 1866, and for other purposes.

To increase the endowment of the University of Alabama from the public lands in said State.

To establish a standard of time in the District of Columbia.

To authorize the construction of a bridge for the transportation of street-cars and other vehicles, etc., over the Rio Grande river between the cities of Laredo, Texas, and Nueva Laredo, Mexico.

To extend the benefits of section 4 of an act entitled "An act making appropriations for the support of the Army for the year ending June 30, 1866," approved March 3, 1865.

To fix and render certain the terms of the United States Circuit and District Courts in the Eastern and Northern Districts of Texas.

To authorize the Oregon Pacific Railroad Company to construct one or more bridges across the Willamette river, in the State of Oregon, and to establish them as post-roads.

To further suspend the operation of section 5574 of the Revised Statutes of the United States, title 72, in relation to guano-islands.

For the immediate appropriation of $1,000,000, in accordance with the urgent request of the Mississippi River Commission, for the preservation, repair, and construction of certain works for the improvement of said river.

To amend the Revised Statutes of the United States relating to the District of Columbia.

To amend an act entitled "An act to amend the statutes in relation to immediate transportation of dutiable goods, and for other purposes," approved June 10, 1880.

To prevent and punish the counterfeiting within the United States of notes, bonds, or other securities of foreign governments.

To complete a statue of the late Rear-Admiral Samuel Francis Du Pont, United States Navy.

To provide for the disposal of abandoned and useless military reservations.

For a bridge across the Missouri river at White Cloud, in Doniphan County, Kansas.

To grant letter-carriers at free-delivery offices thirty days' leave of absence in each year.

Authorizing the Secretary of the Navy to offer a reward of $25,000 for rescuing or ascertaining the fate of the Greely Expedition.

To authorize the construction of a highway-bridge across that part of the waters of Lake Champlain lying between the towns of North Hero and Alburg, in the State of Vermont.

To provide for the appointment of an Acting Secretary of the Smithsonian Institution.

To extend an act approved August 8, 1882, to encourage and promote telegraphic communication between America and Europe.

To authorize foot and carriage or railroad bridges across the Mississippi river at Saint Paul, in the State of Minnesota.

Granting permission to Ensign L. K. Reynolds, United States Navy, to accept the decoration of the Royal and Imperial Order of Francis Joseph from the Government of Austria.

Authorizing the expenditure of money for Indian educational purposes.

Providing for the addition of $10,000 to the contingent fund of the Senate.

Relative to the ceremonies of the unveiling of the statue of Chief-Justice Marshall.

Filling an existing vacancy in the Board of Regents of the Smithsonian Institution.

In relation to ceremonies to be authorized upon the completion of the Washington Monument.

To provide for the muster and pay of certain officers and enlisted men of the volunteer forces.

To fix the times for holding the terms of the Circuit and District Courts of the United States in the Northern District of Iowa.

To amend an act entitled "An act to authorize the construction of a ponton wagon-bridge across the Mississippi river at or near the city of Dubuque, in the State of Iowa."

To fix the time for holding the District Court in the District of Maine.

Fixing the rate of postage to be paid upon mail matter of the second class when sent by persons other than the publisher or news agent.

To establish and maintain a department of labor statistics.

Making all public roads and highways post-routes.

To amend an act passed February 15, 1843, chapter 33, to authorize the Legislatures of certain States to sell certain lands appropriated for school purposes.

Authorizing and directing the sale of the real-estate and riparian rights now owned by the United States at Harper's Ferry, in the State of West Virginia.

Providing for two additional Associate Justices of the Supreme Court of the Territory of Dakota.

To amend section 2743 of the Revised Statutes.

To amend an act entitled "An act to execute certain treaty stipulations relating to Chinese," approved May 6, 1882.

To authorize the construction of a bridge over the Missouri river at or near Sibley, in the State of Missouri.

To remove certain burdens on the American merchant marine and encourage the American foreign carrying-trade.

To equalize the rank of graduates of the Naval Academy upon their assignment to the various corps.

To amend sections 4, 5, and 9 of an act approved February 24, 1879, entitled "An act to create the Northern Judicial District of the State of Texas, and to change the Eastern and Western Judicial Districts of said State, and to fix the time and place for holding courts in said districts," and to provide for holding terms of the court of the Western Judicial District of Texas at the city of El Paso, and for other purposes.

To constitute a bureau of navigation in the Treasury Department.

To repeal the act of July 2, 1862, and such sections of the Revised Statutes of the United States as perpetuate the oath prescribed in said act.

To create an additional United States judicial district, and to establish circuit and district courts therein, in the State of Alabama.

Making appropriations to supply deficiencies on account of the appropriations for the fiscal year ending June 30, 1884, in regard to rebate of tax on tobacco, and to provide for the expenses of the meeting of the Legislature of the Territory of New Mexico, and for other purposes.

To grant to the Gulf, Colorado, and Santa Fé Railway Company a right of way through the Indian Territory, and for other purposes.

For the establishment of a bureau of animal industry, to prevent the exportation of diseased cattle, and to provide means for the suppression and extirpation of pleuro-pneumonia and other contagious diseases among domestic animals.

In relation to the Legislature of Dakota Territory.

To relieve certain soldiers from the charge of desertion.

To amend section 101 of the Revised Statutes of the United States so as to allow the chairman of a sub-committee of a committee of either house of Congress to administer oaths.

To grant a right of way through the Indian Territory to the Southern Kansas Railway Company, and for other purposes.

To authorize the location of a branch home for disabled volunteer soldiers in either the State of Arkansas, Colorado, Kansas, Iowa, Minnesota, Missouri, or Nebraska.

To change the time of holding the District and Circuit Courts of the United States in the Northern District of Georgia.

Making appropriations for the support of the Military Academy for the fiscal year ending June 30, 1885, and for other purposes.

To authorize the extension of the Chesapeake and Ohio Railway Company to a point on the military lands at Fortress Monroe, Va.

Making it a felony for a person to falsely and fraudulently assume or pretend to be an officer or employé acting under authority of the United States or any department thereof, and prescribing a penalty therefor.

Making an appropriation for the Agricultural Department for the fiscal year ending June 30, 1885, and for other purposes.

For the allowance of certain claims reported by the accounting officers of the United States Treasury Department.

Making appropriations for the service of the Post-

Office Department for the fiscal year ending June 30, 1885, and for other purposes.

Making appropriation to supply deficiency in amount required for expenditure to June 30, 1884, for examination and surveys required by acts of March 3, 1875, and June 19, 1878; to ascertain depth of water and width of channel at South Pass of Mississippi river, also for gauging the waters of the Mississippi river and its tributaries.

To amend Article LXXII of the rules and articles of war.

To provide for certain of the most urgent deficiencies in the appropriations for the service of the Government for the fiscal year ending June 30, 1884, and for other purposes.

Making appropriations for the current and contingent expenses of the Indian Department, and for fulfilling treaty stipulations with various Indian tribes, for the year ending June 30, 1885, and for other purposes.

Making appropriations for the payment of invalid and other pensions of the United States for the fiscal year ending June 30, 1885, and for other purposes.

To amend an act entitled "An act to amend the statutes in relation to immediate transportation of dutiable goods, and for other purposes," approved June 10, 1880.

To limit the time within which prosecutions may be instituted against persons charged with violating internal-revenue laws.

To authorize the construction of a bridge across the Missouri river at some accessible point within ten miles north and ten miles south of the town of Rulo, in the county of Richardson, in the State of Nebraska.

To validate and cure defects in certain acts of the Legislative Assembly of Washington Territory.

To authorize the construction of a railroad bridge across the Saint Croix river, in the States of Wisconsin and Minnesota.

To authorize the construction of bridges across the Wisconsin, Chippewa, and Saint Croix rivers, in the State of Wisconsin.

Making appropriation to provide for the expenses of the government of the District of Columbia for the fiscal year ending June 30, 1885, and for other purposes.

Granting the consent of Congress to the Saint Cloud Water-Power and Mill Company to construct a dam across the Mississippi river at Saint Cloud, Minn.

To amend paragraph 7 of section 2527 of the Revised Statutes.

Respecting a bridge at Tonawanda, in the State of New York.

To authorize the construction of a bridge across the Missouri river at a point to be selected between the north and south line of the county of Douglas, State of Nebraska, and to make the same a post-route.

Making appropriations for the consular and diplomatic service of the Government for the fiscal year ending June 30, 1885, and for other purposes.

To provide for the celebration of the World's Industrial and Cotton Centennial Exposition.

Making appropriations for the support of the Army for the fiscal year ending June 30, 1885, and for other purposes.

To amend sections 4381 and 4382 of the Revised Statutes of the United States, relative to fees levied and collected from the owners and masters of vessels in domestic commerce.

To authorize the National Academy of Sciences to receive and hold trust funds for the promotion of science, and for other purposes.

Making appropriations for the construction, repair, and preservation of certain public works on rivers and harbors, and for other purposes.

Making appropriations for the legislative, executive, and judicial expenses of the Government for the fiscal year ending June 30, 1885, and for other purposes.

To declare the cantalever bridge, constructed by the Niagara River Bridge Company across the Niagara river, a post-route.

To amend chapter 20 of the Revised Statutes relating to the District of Columbia, concerning mechanics' liens.

Making appropriations to supply deficiencies in the appropriations for the fiscal year ending June 30, 1884, and for prior years, and for those certified as due by the accounting officers of the Treasury in accordance with section 4 of the act of June 14, 1878, heretofore paid from permanent appropriations, and for other purposes.

Making appropriations for sundry civil expenses of the Government for the fiscal year ending June 30, 1885, and for other purposes.

Making appropriations for fortifications and other works of defense, and for the armament thereof, for the fiscal year ending June 30, 1885, and for other purposes.

Making temporary provision for the naval service.

Making an appropriation for the relief of Lieut. A. W. Greely and his party, composing what is known as the Lady Franklin Bay Expedition to the Arctic regions.

Authorizing the Secretary of War to lease certain lands to the Board of Fish Commissioners of the State of Michigan.

Making an appropriation to relieve the sufferers by the overflow of the Ohio river and its tributaries.

Making further appropriations for the relief of destitute persons in the districts overflowed by the Ohio river and its tributaries.

Authorizing the President of the United States to appoint from the sergeants of the Signal Corps two second lieutenants.

Reappropriating the sum of $125,000, not expended, for the relief of sufferers by the floods of the Mississippi river.

To fill vacancies existing in the Board of Managers of the National Home for Disabled Volunteer Soldiers.

Appropriating the further sum of $100,000 for the sufferers by the overflow of the Mississippi river and tributaries.

To provide temporarily for the expenses of the Government.

CONNECTICUT. State Government.—The following were the State officers during the year: Governor, Thomas M. Waller, Democrat; Lieutenant-Governor, George G. Sumner; Secretary of State, D. Ward Northrup; Treasurer, Alfred R. Goodrich; Comptroller, Frank D. Sloat. Judiciary: Supreme Court: Chief-Justice, John D. Park; Associate Justices, Elisha Carpenter, Dwight W. Pardee, Dwight Loomis, and Miles T. Granger.

Legislative Session.—The Legislature met on Jan. 9, and adjourned on April 4. The following is a summary of the work of the session:

The bill for specific appropriations for State expenditures, on the congressional plan, was passed, and a new legislative committee created, to be known as the "Committee on Appropriations."

The State tax was fixed at 1¼ mill on the dollar, the same as last year. A temporary deficiency in the treasury being probable, the Treasurer is authorized to borrow $200,000.

A commission of nine persons, to be approved by the Governor, and representing the various taxable interests of the State, is created to make a revision of the tax laws.

The exemption of $1,000 of the estate of veterans is limited to those who are pensioned.

The proposed appropriation of $200,000 for a new

State Prison or additions to the existing one failed, and the proposed $125,000 for additions to the Insane Hospital at Middletown was cut down to $75,000. Commissioners are created to inquire into the State-Prison subject.

A bill to insure greater safety at grade-crossings of highways by railroads was passed.

The New York and New England Railroad Company was authorized to issue 50,000 shares of preferred stock, and to use the proceeds of the remaining second-mortgage bonds for double-tracking the road.

It was voted to accept the sum agreed upon as a fair settlement of taxes due from the Housatonic Railroad Company.

A commission was appointed to revise the probate laws, and all proposed amendments of those laws were rejected.

A bill allowing official stenographers for the Superior Courts was passed.

A bill was passed under which, in trials involving the death-penalty or life-imprisonment, juries may be kept under the control of the sheriff, and not permitted to go at large, as at present. It is discretionary with the court.

The election law is amended so that names can not be added to the "to be made" list later than Thursday at five o'clock, before the day of election. The present law allows till five P. M. on Friday.

A constitutional amendment providing for biennial sessions after 1886 was approved and sent to the people at the time of the October town elections.

Many measures for changes of the license law were offered, but all were rejected excepting a bill giving prosecuting agents $5 in each case, and $5 additional when conviction is secured.

Among bills passed were the following:

Providing that there shall be no distinction against any person on account of race or color.

Prohibiting under penalty the placing of telegraph or telephone poles, etc., upon a highway without consent of the adjoining proprietors or approval of a county commissioner, or the willful injury of any tree in the highway for the purpose of constructing therein any telegraph or telephone fixtures or wires, without the consent of the adjoining proprietor.

That all sick veterans residents of Connecticut, whether of Connecticut regiments or those of other States, shall be entitled to enter the State hospitals.

That children under twelve years shall not be employed as acrobats, gymnasts, peddlers, beggars, etc.

Instructing the State Board of Agriculture to inquire whether any legislation is necessary to prevent the destruction of the woodlands of the State, and to encourage tree-planting.

To relieve the State Prison, now overcrowded, male prisoners having only short terms may be transferred to county jails.

Prohibiting the placing of children between one and sixteen years of age in almshouses, and providing for their care in temporary homes at the public expense.

For the protection of water in public reservoirs.

Prohibiting the sale of impure ice cut from water impregnated with sewage, etc., for family or hotel use.

Making the new time the standard for the State.

To promote instruction in music in public schools.

Financial.—The funded debt of the State on Dec. 1, 1884, amounted to $4,275,100. During the fiscal year ending Nov. 30, 1884, new bonds to the amount of $1,000,000 were issued and sold; and outstanding bonds, maturing Jan. 1, 1884, to the amount of $1,315,000, were paid; thus the debt was reduced to the extent of $315,000. The balance of cash in the treasury at the beginning of the year was $837,868.80; the balance at the end of the year, $524,583.38; thus the reduction of the funded debt was almost exactly counterbalanced by the reduction of the amount of the balance in the treasury.

The rate of interest upon the newly issued bonds is 3½ per cent., and the bonds were sold at a premium of 6·85 per cent.

During 1885 bonds amounting to $1,741,100 will mature.

The total resources of the treasury during the fiscal year (including the balance on hand at the beginning of the year and $1,068,500 received from the sale of bonds already mentioned) amounted to $3,452,328.68.

The principal sources of ordinary revenue were as follow: Taxes received from towns, amounting to $540,667.90; taxes on mutual insurance companies, amounting to $217,323.38; taxes on savings-banks, amounting to $193,511.73; and taxes upon railroad companies, amounting to $412,284.18.

The principal items of expenditure, other than payment of State bonds, were as follow: On account of sessions of the General Assembly, $108,284.08; judicial expenses, $239,896.98; board of prisoners in county jails, $86,573.89; on account of common schools (in addition to the amount paid from the school fund), $228,926.50; on account of State Reform School, $72,752.20; on account of humane institutions, $162,346.92; on account of the National Guard, $152,945.68; and on account of interest on State bonds, $229,641.

In some of these amounts, however, especially in the amount specified as expenses of the National Guard, are included sums that can not be classified as ordinary expenses.

The taxable valuation by counties in 1882 and 1883 was as follows:

COUNTIES.	1883.	1882.
Hartford	$87,885,518	$87,229,288
New Haven	92,815,588	90,127,888
New London	89,227,512	89,446,768
Fairfield	57,280,854	58,508,928
Windham	17,752,753	17,629,958
Litchfield	26,272,021	26,479,259
Middlesex	19,689,486	19,854,657
Tolland	8,451,152	8,456,275
Total	$348,774,879	$342,242,566

Education.—The number of public schools is 1,639, and the number of children between the ages of four and sixteen years shown by the enumeration of January, 1884, was 156,601, being a small increase over 1883. The total expense of maintaining the schools, not including the expenses of the Normal School, during the past year, was $1,777,277, of which amount the sum of $1,130,863 was paid to teachers. Of the whole expenditure, $112,950.75 came from revenue of the school fund; $228,926.50 from the treasury of the State, $42,089.06 from income of town deposit funds, $810,253.93 from town taxes, $484,343.55 from district taxes, and the rest from other sources.

The principal of the school fund on Nov. 30, 1884, was $2,017,158.74, and its income during the year ending on that date was $127,-

049.47. Appropriations were made by the General Assembly in 1883 and 1884 toward satisfying deficiencies which had resulted to the fund from depreciation in real estate acquired by the foreclosure of old mortgages.

The Normal School is improving. Its number of pupils on Nov. 30, 1884, was 164. The common schools throughout the State are making satisfactory progress. A few of them, however, from special causes, are deteriorating.

State Prison.—The last General Assembly appointed "a commission to take into consideration and examine all matters relating to the building of a new State Prison, or to provide for an enlargement or improvement" of the present one. The commissioners recommend the State to retain the land now occupied at Wethersfield, to acquire a small piece of ground adjacent thereto, and to build a new prison on the tract of land thus enlarged.

Hospital for the Insane.—The number of patients in the Connecticut Hospital for the Insane on Nov. 30, 1883, was 860. During the year, by the admission of 243 new patients, the whole number under treatment was 1,103, of whom 180 were discharged, leaving, on Nov. 30, 1884, 923. Although the hospital has been greatly and even dangerously overcrowded, the death-rate has been lower than in former years, and below the average rate in similar institutions elsewhere. The regular revenue has been made sufficient to meet all ordinary expenses, including repairs and improvements. Under authority given by the General Assembly at its last session, the hospital is now in process of enlargement by the construction of an addition that will accommodate 150 patients, and will probably furnish, with the accommodations already existing, ample room for all female patients for many years. The new building is expected to be ready for use in April, 1885, and its cost will not exceed the $75,000 appropriated. Additional provision for the accommodation of male patients is considered necessary.

Railroads.—The number of railroad companies in the State is twenty-five, of which fourteen have roads in operation. The total amount of capital stock issued by all the companies is $57,935,077, of which amount stockholders residing in Connecticut hold $17,438,950. The length of completed roads in the State is 973 miles, the length of double tracks 174 miles, and the length of siding 248 miles, making the total of single-track miles 1,395.

The number of passengers carried during the last year was 16,957,574, of whom only one was fatally injured. The total number of casualties of all sorts was considerably less than during the year preceding. The commissioners represent that the roads are well managed and in good condition.

Savings-Banks.—The amount of deposits in the 84 savings-banks of the State on the 1st of October, 1884, was $90,614,622.89, being an increase of $2,516,239.12 during the year ending on that day. The number of depositors was then 252,245, being an increase of 5,593 during the year. The amount of indorsed paper held by these banks was $3,802,075.50. It is a fact of favorable significance that there has been in this class of investments a diminution during the year to the extent of $228,691.29. The amount invested in bank-stocks was $6,225,960. The banks are represented to be sound and safe. The commissioners, however, still entertain the opinion, which they have repeatedly expressed to the General Assembly, that such banks ought to be prohibited from investing any of their funds in notes not secured by mortgage or other safe collateral security; and that they ought not to be permitted in future to purchase stock of national banks, especially of national banks located outside of the State.

Insurance.—There are ten stock fire-insurance companies in the State. On Jan. 1, 1884, their paid-up capital was $10,801,500; their gross assets amounted to $24,270,545; and their surplus above all liabilities was $6,676,523. There are also seventeen mutual fire-insurance companies, whose assets on the same date amounted to $1,151,685, and whose surplus above all liabilities was then $854,731. There are nine life-insurance companies, whose gross assets on that date amounted to $109,059,621, and whose liabilities (except capital) were $96,147,577.

Statue of Buckingham.—On the 18th of June a beautiful memorial of Connecticut's "war Governor," William A. Buckingham, was unveiled in Hartford. It is a massive bronze statue, representing the Governor seated, is placed on a pedestal of polished granite, and stands in the vestibule of the new State-House. Five thousand veterans of those sent by Connecticut to the national armies during the civil war took part in the ceremonies, and around the vestibule were ranged the tattered battle-flags that Buckingham had intrusted to them on their departure and received again on their return. The sculptor is Olin L. Warner, of New York, a native of Connecticut. The orator of the occasion was U. S. Senator O. H. Platt.

Governor Buckingham was born in Lebanon, Conn., May 28, 1804, and died in Norwich, Feb. 3, 1875. He was at first a farmer, but afterward was a merchant and manufacturer. He was Mayor of Norwich in 1849, 1850, 1856, and 1857. He became Governor of the State in 1858, and was re-elected seven times, when (1866) he refused another renomination. In 1868 he was elected to the United States Senate. His fame rests chiefly on his conduct during the war, when he showed untiring energy and skill in sustaining the national Government in its struggle for existence; not only filling the quota of the State in the call for troops, but by personal sacrifice and the highest character bringing a strong moral support to the cause of his country, so that he won the admiration even of his political opponents.

Shad.—The catch of shad in Connecticut river below Essex was only 177,308 in 1883, against 272,903 in 1882, and 351,678 in 1881. The catch along the shore in pounds, hauling-seines, and gill-nets, for 1883, was 40,398. In the Farmington river, in 1883, only 1,155 shad were taken, against 3,800 for 1882 and 11,505 in 1881. The commissioners believe that the present modes of fishing are so destructive as to threaten the extermination of the shad. They consider that the only remedy is artificial propagation, which was recommenced on Farmington river in 1881, after being discontinued for three years. At the Massachusetts hatchery below Holyoke dam, 3,212,500 young shad were turned into the river in 1883.

Oyster-Culture.—The third annual report of the Shell-Fish Commissioners embodies a statement of the work done by the commission during 1883.

One hundred and eighty-three applications for oyster-grounds were made to the commissioners during the year, covering 14,687·4 acres. There were deeded during the year, 14,907·63 acres, which netted to the State $16,882.16.

During the three years of the commissioners' charge they had sold 38,548·9 acres, and paid into the State Treasury $42,403.79. In addition to this, 12,539·8 acres had been granted, but not deeded, which will net the further sum of $13,798.78.

All the natural beds have been outlined and mapped except Fish Island and Roton Point beds. Insufficient examination and private litigation have prevented a decision about these beds. The eight beds that are completely described and to be confirmed by law are Cornell Reef, 15 acres; Portchester, 218; Great Captain's, 152; Field Point, 84; Greenwich Point, 403; Fairfield, 1,273; Bridgeport, 334; and Stratford, 3,055—making a total of 5,498 acres.

The whole number of acres subject to the care of the engineer for buoying is 38,548, and the work involves great labor and extraordinary patience, skill, and exactitude.

There are about 1,100 acres under cultivation in the State, and probably more. In 1883 there were 290 owners, against 216 in 1882. Steamers are rapidly increasing. A list of thirty-one steamers is given, aggregating a carrying capacity of 27,225 bushels.

The total receipts paid into the State Treasury are $20,516.13; of this $14,907.93 was from deeds, and $3,681.47 from taxes. The balance was from various sources. The disbursements were $8,446.24. The receipts are $2,028.87 more, and the expenses $2,444.43 less, than they were in 1882.

Constitutional Amendment.—The following is the amendment providing for biennial legislative sessions:

> SECTION 1. A general election for Governor, Lieutenant-Governor, Secretary, Treasurer, Comptroller, and members of the General Assembly, shall be held on the Tuesday after the first Monday of November, 1886, and biennially thereafter, for such officers as are herein and may be hereafter prescribed.
>
> SEC. 2. The State officers above named and members of the General Assembly elected on the Tuesday after the first Monday of November, 1886, and those elected biennially thereafter, on the Tuesday after the first Monday of November, shall hold their respective offices from the Wednesday following the first Monday of the next succeeding January until the Wednesday after the first Monday of the third succeeding January, and until their successors are duly qualified.
>
> SEC. 3. The compensation of members of the General Assembly shall not exceed three hundred dollars for the term for which they are elected, and one mileage each way for the regular session at the rate of twenty-five cents per mile; they shall also receive one mileage at the same rate for attending any extra session called by the Governor.
>
> SEC. 4. The regular sessions of the General Assembly shall commence on the Wednesday following the first Monday of the January next succeeding the election of its members.
>
> SEC. 5. The Senators elected on the Tuesday after the first Monday of November, 1885, shall hold their offices only until the Wednesday after the first Monday of January, 1887.

It was voted upon at the annual town meetings on the first Monday of October, and ratified by the following vote: For, 30,520; against, 16,380. In 1886 and thereafter, members of the Legislature and State officers will be elected for two years. The biennial sessions will begin in 1887.

Political.—A Republican State Convention assembled in Hartford on April 23, and chose delegates to the National Convention of the party. Delegates to the Democratic National Convention were chosen by the Convention that met in New Haven June 5, and adopted, among others, the following resolution:

> The Constitution gives Congress power to lay duties, viz., "to pay the debts and provide for the common defense and general welfare of the United States"; and we therefore believe it unconstitutional as well as dangerous to collect taxes beyond the necessary requirements of the Government, and advocate a tariff sufficient to furnish the necessary revenue for the economical administration of the same, and adjusted in its application for the general welfare, so as to prevent unequal burdens, and encourage and develop the productive industries of the country.

The Republican State Convention, to nominate candidates for State officers, convened in New Haven on Aug. 20. The following were the nominees:

> For Governor, Henry B. Harrison, of New Haven; Lieutenant-Governor, Lorin A. Cooke, of Barkhamsted; Secretary of State, Charles A. Russell, of Killingly; Treasurer, Valentine B. Chamberlain, of New Britain; Comptroller, Luzerne I. Munson, of Waterbury. Presidential electors were also nominated.

A Democratic State Convention met in Hartford on the 2d of September, and nominated presidential electors and the following State ticket:

> For Governor, Thomas M. Waller, of New London; for Lieutenant-Governor, George G. Sumner, of Hartford; for Secretary of State, D. Ward Northrop, of Middletown; for Treasurer, Alfred R. Goodrich, of Vernon; for Comptroller, Joseph D. Plunkett, of New Haven.

The following were among the resolutions adopted:

Resolved, That in favoring all reasonable means to promote the cause of temperance, we protest against the adoption of laws that interfere with personal rights and privileges, and are sumptuary in effect. The sale of intoxicating liquors should be regulated by the reasonable fees of well-adjusted license laws, the privilege to be granted to suitable and responsible persons.

Resolved, That we recognize the justice of the universal demand made by the working-men of this State for weekly payment of wages, and we are in favor of legislation tending to that object, and for the abolition of contract-labor in our prisons.

Resolved, That the vast interests in every part of Connecticut in the production of seed-leaf tobacco are seriously threatened by the importation of the Sumatra leaf, and we urge upon our members of Congress the duty of amending the law so as to prevent technical evasions and the threatened ruin to interests involving millions of dollars.

The vote for presidential electors at the election on the 4th of November was as follows: Republican, 65,923; Democratic, 67,199; Prohibition, 2,305; Greenback, 1,688; scattering, 6; total, 137,311. Republican Congressmen were elected in the first and third districts by pluralities of 304 and 2,462 respectively, and Democratic Congressmen in the second and fourth districts by pluralities of 2,016 and 153 respectively. The total vote for Governor was 137,724, of which Waller received 67,922; Harrison, 66,277; all others, 3,525. For Lieutenant-Governor the Democratic candidate had a plurality of 255. There was a Republican plurality for Secretary of State of 180; for Treasurer, of 83; and for Comptroller, of 340. A majority being necessary for the election of State officers, there was no choice, and the Legislature, in joint convention on the 8th of January, 1885, elected the Republican candidates. The Legislature of 1885 comprises 17 Republicans and 7 Democrats in the Senate, and 160 Republicans and 88 Democrats in the House.

COREA, a kingdom in eastern Asia, occupying the peninsula opposite the Japanese island of Niphon, and bordering on the Chinese province of Manchuria. The suzerainty of the Emperor of China is acknowledged by the payment of a tribute of nominal amount, by the sending of an annual mission to Peking to receive the Chinese calendar, and by accepting investiture from the Emperor when a new king is enthroned. The government is an absolute monarchy, similar to that of the Celestial Empire in the organization of the administration and the system of appointments. The reigning King is Li Fin. The statesman at the head of the department of Finance, Taxes, and Customs, is Paul von Möllendorf, a German. The population is estimated by recent visitors in Corea at not over 7,000,000, or 33 to the square kilometre.

Commerce and Productions.—The mineral wealth of Corea is great but undeveloped. The country in some sections is rich in cattle of an excellent breed. Hides are a considerable article of export. Corean tobacco has been found suitable for the foreign market, and good cigars have been made by Corean workmen. Lumber and grain are leading exports. Some of the products of native industries are of superior quality, notably paper of great strength, blinds made of split bamboo, and straw matting. The foreign commerce does not exceed $3,000,000 in value, and it is not likely to expand rapidly, because the people are poor and simple in their habits. The demand for foreign goods is supplied from Shanghai by Chinese through Newchwang, and by Japanese through Nagasaki.

Commercial Treaties.—The first treaty of friendship, commerce, and navigation concluded with a western power was made with the United States, May 17, 1882. Germany and Great Britain immediately sent plenipotentiaries to obtain the same advantages, and treaties were concluded with those countries and with France, on the basis of the American treaty. Germany and England then pressed for a more favorable tariff, and for participation in the commercial privileges and rights granted to China and Japan. English and German commissioners appeared at Seoul, Oct. 26, 1883. After long negotiations they succeeded in getting treaties signed, November 26. These grant exterritorial jurisdiction, and allow the acquisition of land for private dwellings within a radius of five kilometres from the commercial establishments in the three treaty ports. Certain imports are duty-free; raw metals, cotton yarn, and other raw materials, pay 5 per cent. duty; shirtings and hardware, 7½ per cent.; other costly articles, 10 per cent.; and a small list of luxuries, 20 per cent. Navigation dues of 30 cents a ton must be applied to harbor improvements, lighthouses, etc. In 1884 a treaty of commerce was negotiated with Russia.

Revolutionary Disturbance.—An insurrectionary outbreak occurred at Seoul, December 15, the second disturbance since the opening of friendly intercourse with foreign nations. During an entertainment given by the King to the British Minister, at a signal the King's son and six of the ministers were murdered, and the Queen also disappeared. As in 1882, the Japanese were especially the object of popular fury. Their legation was burned. A collision occurred between the Chinese and the Japanese guards, the result probably of a mistake, and the Corean soldiery attacked both indiscriminately. A second set of ministers, who were called by the King after the murders in the palace, were likewise massacred. The King then placed himself under the protection of the Japanese. After the riots, the Japanese withdrew to Chumul-Po.

COSTA RICA, one of the five independent republics of Central America. The area is estimated at 19,980 square miles; population set down at 185,000 in an official report in 1874.

Government.—The Constitution of 1859, modified in 1871, and finally in 1882, vests the executive power in a President, elected for a term of four years. The legislative power resides in a Congress composed of a Senate and a Chamber of Representatives—two Senators to each province, and one Representative to every 10,000 inhabitants. Both Senators and Representatives are chosen in electoral assemblies, the members of which are returned by the suffrage of all citizens that are possessed of an adequate means of living. The President of the Republic is General Próspero Fernandez, elected August 10, 1882. The Cabinet was composed of the two Ministers—of the Interior, Licentiate Bernardo Soto; and Foreign Affairs, Dr. José María Castro—who also ranked respectively as First and Second Vice-President. Furthermore, the Minister of the Interior combines in his portfolio the department of Police, Commerce, and Agriculture, and War and Marine; and the Minister of Foreign Affairs those of Public Instruction, Public Charities, Public Worship, and Grace and Justice.

A ministerial crisis that occurred in the beginning of the year, attributed to the urgent necessity of adopting "radical measures of economy" in the administration, terminated in the resignation of the Secretaries of War and Marine, Señor Miguel Guardia, and of the Interior, Señor Victor Guardia. It was then decreed that the Cabinet henceforth should be limited to two portfolios as above.

Diplomatic and Consular Corps.—The Minister Resident of Costa Rica in the United States is Señor E. Gutierrez; and the Consul-General at New York is Señor J. M. Muñoz. The United States Minister (accredited to the five Central American republics, and resident at Guatemala) is Mr. H. C. Hall; and the United States Consul at San José is Mr. A. Morrell.

Army.—The standing army, of the nominal strength of 1,000 men, was in May, 1884, fixed at 26,857 for the war footing. In the militia are obliged to serve, when necessary, all male inhabitants between the ages of eighteen and fifty-five, not enrolled in the regular army.

"The 'Gaceta Oficial' daily chronicles the discharge of army officers, and it is hoped that Soto's broom may sweep out some of the useless barracks scattered through the country, thus giving the people a respite from their never-ending military duties. The only dissenting voices would be those of the discharged officers themselves, who, perhaps, much to their disgust, would be obliged to work. Militarism has ever been the stumbling-block of the Spanish-American republics; but those who can read the signs of the times here see a general desire on the part of the republic, irrespective of political creeds or antecedents, to sustain the present government in its measures of retrenchment and economy."

Education.—Costa Rica, with all her failings, seems never to lose sight of the importance of fostering the cause of public education. In proportion to her population and revenue, she supports a larger number of public schools of all grades than many of her more pretentious sister republics. In the early part of the year the establishment of a *Colegio de Segunda Enseñanza* (school for intermediate instruction), in the capital, out of the funds of the University of Santo Tomás, was spoken of as probable.

Finances.—In the report of the Minister of Finance, on the revenue from August 1, 1882, to April 30, 1883, the national revenue and expenditure were given at $1,550,019 and $2,796,468, respectively; deficit, $1,246,449. This deficit, however, the minister observed, was not caused by increased expenditure on the part of his government, but was the result of debts left by the preceding administration, which had since been funded into the bonds of the home debt.

In the budget for the fiscal year 1884–'85, the revenue was set down at $2,559,886, and the expenditure at $2,559,876, showing a surplus of $10.

The department of Limon had been partially exempted from the payment of import duties. Such articles as whisky, gunpowder, and tobacco, however, were not included in the free list, and duties were collected thereon by a double force of custom-house officials at Limon and Carrillo, the southern terminus of the Atlantic branch of the railway.

National Debt.—Here follows a statement of the foreign debt of Costa Rica, in 1884, as presented by the council of foreign bondholders:

Amount outstanding of 6 per cent. loan of 1870	£941,200 00s.	
Overdue interest	564,720 00	
		£1,505,920 00s.
Amount outstanding of the 7 per cent. loan of 1872	£1,460,200 00	
Overdue interest	1,078,175 10	
		2,558,278 10
Total foreign debt		£4,089,198 10
Equal, at par, in United States money		$20,195,967 00

To this statement the following report was appended: "The council and the committees were not without hope that after the refusal of the Congress of Costa Rica to ratify the agreement made with the bondholders by the late President Guardia, some attempt would have been made by that Government to renew negotiations with the bondholders for an arrangement of the debt. In July, 1883, the Council received a copy of the 'Official Gazette' of Costa Rica, dated May 6, 1883, containing a proposal from Mr. Minor C. Keith, the contractor for the railway, to the Government, for the completion of the line to San José, and the settlement of the external debt of the republic. This proposal was laid before the committees of the 6 per cent. and 7 per cent. bondholders, separately, at meetings specially convened to consider it, and each committee unanimously resolved to have nothing whatever to do with such a scheme. The decision was accordingly made known to the President of the Republic, and also to Mr.

Keith by the next mail. Shortly after an 'Official Gazette' of July 14, 1883, was received, which contained the terms of the contract as drawn up between Mr. Keith and the Government. The Minister of Finance, in reply to the dispatches informing the Government of the resolutions of the committees, under date of the 17th of September, expressed the hope of the President that the committees would defer giving a definite opinion upon the contract until they had an opportunity of discussing it with Mr. Keith. Mr. Keith has since arrived in England; but, after a short stay here, he has returned, without making any proposal, to Costa Rica, for a brief period, in the hope that he may be able to return with power to make some satisfactory arrangement with the bondholders. It is understood that the Government are quite without funds to continue the railroad, the cost of which is estimated at £900,000."

Commerce.—The chief destination and source of the exports and imports of Costa Rica, and their respective values, for the year 1883, are exhibited in the subjoined table:

COUNTRIES.	Exports to.	Imports from.
France	$263,000	$261,000
Germany	264,000	99,000
Great Britain	1,165,000	953,000
United States	661,000	741,000
Other countries	79,000	112,000
Totals	$2,432,000	$2,166,000

The chief article of export is coffee; but the prices of late years brought by that staple have been unremunerative, and attention is now being directed to the culture of other products, such as tobacco, the sugar-cane, bananas, etc. A sack of coffee pays at present a freight of 75 cents to Puntarenas, on the Pacific coast, and $1.50 to Carrillo, the nearest station to the capital on the Atlantic branch of the railway, and not one half the distance that Puntarenas is. Of the total value of the exports as given in the foregoing table, coffee represented $2,000,593; India-rubber, $166,509; metals, $92,951; skins, $81,721; bananas, $55,401. Other minor articles were dye-woods, tortoise-shell, silver in bars, etc. The coffee-crop for 1884, it was predicted, would be over 300,000 sacks, at an estimated value of $3,000,000. In April it was announced that the tobacco monopoly was fully established, and the decree issued prohibiting the cultivation of the plant by the farmers. On the other hand, the free working of India-rubber in the lands of the republic was authorized by decree, in October following, but its exportation restricted to the established ports of entry on either coast.

Shipping.—The movement at the two principal ports of the republic was as follows, in 1883:

PUNTARENAS.

ENTERED: 80 steamers and 15 sailing-vessels, with an aggregate of 126,240 tons.

CLEARED: 81 steamers and 15 sailing-vessels, with an aggregate of 126,192 tons.

LIMON.

ENTERED: 72 steamers and 25 sailing-vessels, with an aggregate of 108,826 tons.

CLEARED: 71 steamers and 26 sailing-vessels, with an aggregate of 110,270 tons.

Weights and Measures.—The metric system of weights and measures was adopted in the course of the year, and the corresponding regulations issued by the Government.

Railways.—There were railways in operation, in 1883, as follows: Alajuela to San José, 13⅓ miles; Puntarenas to Espartera, 14; San José to Cartago, 13⅓; Limon to Rio Lucio, 70; total, 110 miles. The total receipts were $52,981, and the total expenditures, $82,857.

Telegraphy.—Costa Rica has had a line between Puntarenas, its port on the Pacific, and the capital, San José, since 1866. Within a few years the line has been extended from San José to Limon, the Atlantic port; and in July, 1879, telegraphic communication with Nicaragua was established, and thus with the rest of the world, through San Juan del Sur, where the Central and South American Telegraph Company have a cable-station. The lines are owned and controlled by the Government, employés being paid from twenty dollars to fifty dollars a month at way-offices, and somewhat more liberally in the departmental capitals. The total length of telegraph lines in the republic on Jan. 1, 1884, was 366 miles. The number of dispatches transmitted in 1883 was 28,715, of which 5,831 were official; the receipts of the department amounted to $5,974; and the expenditure to $27,101.

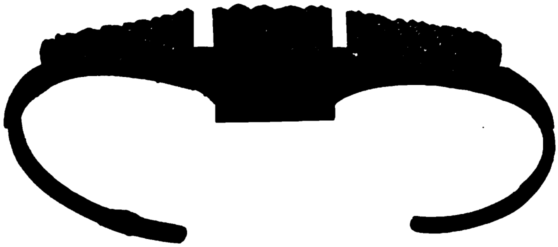
Post-Office.—The amount of revenue from this department in 1882–'83 was $21,156, or $335 less than the cost of the department.

Political.—At the beginning of the year the Colegio de Abogados was directed by the Government to inquire into and report upon reforms required in the existing legislation on juries. It was reported in July, 1884, that the Jesuits had incurred the displeasure of the Costa Rican Government, and been banished from the country. Their enemies charged them with conspiracy against the existing administration. Costa Rica was the last of the Central American republics to tolerate the society, the presence of whose members in the other four states had always been regarded as prejudicial to the peace and welfare of the country. Rumors of a probable suspension of relations between Costa Rica and the Papal See were current toward the close of the year. A projected revolutionary movement was, in October, discovered in time to be prevented. It was to have begun in the military barracks. Some arrests were made. The pretext for the movement was sought in the supposed attack upon religion implied in the expulsion of the Jesuits by the Government.

CRAPE-STONE, an article used for jewelry to be worn by persons in mourning. Pins and brooches for fastening mourning garments have commonly been made of wood and covered with crape; but the invention of crape-stone has largely supplanted them in all parts of the world, and it is now made into almost every conceivable article of jewelry. The manufactory is in Providence, R. I., where a large number of skilled artisans are employed. Crape-stone of the first class is made from onyx, which is cut with tools and abraded with acids to produce the crape-like corrugations. These are in series side by side, or grouped in divisions; they are practically parallel, either longitudinal, lateral, or diagonal, sometimes waved; and the effect is perfected by the finer cross-lines. The stone, after being cut, is colored a lusterless black. The onyx is obtained in large quantities in our Western Territories, but a portion of the supply is from Idar, Oldenburg. The American stone is sent to Germany, where it is sawed into the desired sizes, cut, and prepared for the ornamentation. It is then returned to this country and subjected to the craping-process at Providence. The workman cuts each corrugation and the finer cross-lines with the utmost care, after which the stone is subjected to the acid. Crape-stone of the second class is made of silicious compounds, with mineral or metal fluxes, and is formed in molds. It is then covered with a film of wax at certain points, and placed in a bath of corrosive acid, and the combinations produce the crape effect. The processes, which are the invention of Charles A. Fowler, of New York, are the result of a long series of experiments. The accompanying illustrations give a good idea of the peculiar effect produced in this species of jewelry.

CRAPE-STONE EAR-RINGS.

CRAPE-STONE BROOCH.



CRAPE-STONE BRACELET.

CUBA, an island of the West Indies, belonging to Spain. (For details relating to area, territorial division, population, etc., see "Annual Cyclopædia" for 1883.)

Army.—The commander-in-chief and Captain-General of the island is Don Ramon Fajardo é Izquierdo, lieutenant-general, lately Captain-General of Porto Rico, and transferred to Cuba upon the resignation of Captain-General Castillo. The strength of the Spanish forces in Cuba, in 1884, was 25,658 men.

Discriminating Duties.—On Dec. 27, 1883, the following message was cabled from Madrid:

> A decree is gazetted, in accordance with the recommendation of the Council of Ministers on the 22d inst., abrogating Article V of the decree of March 12, 1868, whereby goods from the United States pay duty in Cuba as though they had been brought in foreign ships, even when arriving under the Spanish flag. The preamble of the decree says that the objects of the measure are to define the equitable conditions of the reciprocal trade between Cuba and the United States, without prejudice to an ulterior revision of the tariff, and to place the commercial relations of Spain and the United States upon a sound basis. The decree will become operative in thirty days after its publication by Spanish consuls in their respective localities.

In 1868, the year before the war in Cuba, a decree was issued that was aimed at American merchandise exclusively. This decree levied a duty of 5 per cent. on the value of all American goods carried into Cuba in any vessel whatever. It was to favor Spanish shipping, and was in addition to the heavy import duties levied on all foreign goods sold in Cuba. The effect was not what was anticipated. The Americans retaliated. A discriminating duty on goods brought here in Spanish ships was levied, and the result is that Spanish ships have since entered American ports in ballast from Cuba.

In January, 1884, the Spanish Cabinet decided that the commercial convention with the United States, which was the outgrowth of the above decree, should go into effect on March 1, except the portion regarding the abolition of consular tonnage-tax on vessels leaving American ports for Cuba or Porto Rico, which would require the sanction of the new Cortes.

The commercial arrangement negotiated between Messrs. Elduayen and Foster, and becoming operative from March 1, 1884, contains the important clause that goods imported into Cuba and Porto Rico under the American flag are to be subject to the same duties as if they were imported under the Spanish flag. To understand the provisions of this arrangement, it should be mentioned that the Cuban tariff divides goods as follows:

I. Spanish products under the Spanish flag.

II. Spanish products under foreign flag.

III. Foreign products under the Spanish flag.

IV. Foreign products under foreign flag.

But this arrangement provided that American products, whether imported in Spanish or American vessels, should pay the duty stipulated under Class III, while other foreign goods under non American flags became liable to the rates under Class IV, and would only be admitted at the rates of Class III if imported under the Spanish flag.

In order to show the difference, we shall give the rates of duty of a few articles of merchandise:

	Class III.	Class IV.
Stone-ware, the 100 kilogr.	$3 15	$4 20
Common china, the 100 kilogr.	7 55	9 65
Porcelain, the 100 kilogr	81 50	40 20
Artificial flowers, the kilogr	2 90	8 70
Pianinos, each	58 00	74 00
Pianos, each	101 50	129 50
Hand-organs, ad valorem	29 per cent.	37 per cent.
Toys	29 per cent.	37 per cent.
Common printing-paper, the 100 kilogrammes.	$3 15	$4 20
Iron, in bars, sheets, etc., the 100 kilogrammes	1 30	1 75

An extra 25 per cent. being added, this renders the duties under Class IV still more onerous.

Commercial Crisis.—Early in March it was reported from Havana that the savings-bank had suspended payment, and that Señor Joaquin Limendoux, its president, had committed suicide. The commercial situation was becoming very critical. The low price of sugar, the tightness of the money market, and the general distrust accelerated a crisis threatening to involve all branches of business. At Sagua, Rodriguez & Co. failed, with liabilities exceeding $2,000,000. At Cárdenas, Miyares & Co. suspended; and McKellar, Luling & Co. were announced to be in difficulties. Captain-General Castillo at this juncture declined permission for a general planters' and merchants' meeting proposed to be held for the purpose of urging reforms of a radical nature, but permitted each Board of Trade to submit separately to him suggestions to that effect. Meanwhile it was proposed to convert the suspended savings-bank into a mortgage-bank similar to those existing in Madrid and Paris. The Bank of St. Catalina was obliged to suspend, and the Banco Industrial was barely able to hold its ground. The root of the evil was the long-continued and exhaustive taxation, and the barefaced exploitation of the industry and productiveness of the island to the profit of the Spanish officials.

A New Loan.—Early in April news reached Havana that the Minister of the Colonies had made a new loan of $3,000,000 with the Hispano-Colonial Bank of Barcelona, for the account of the Cuban Treasury, pledging in return a daily payment of $15,000 from the income of the Cuban custom-houses.

Aguero's Landing.—Simultaneously the landing of a small band of Cuban revolutionaries of eighteen men, headed by Aguero, was announced from the vicinity of Cárdenas, causing a feverish state of excitement.

Elections.—The elections for members of the Spanish Cortes came off in April, and there was some complaint that the result by no means represented the opinion of the country. As the best proof of this, it was mentioned that the autonomists were triumphant at the election of provincial deputies in the province of Havana, the most important of the whole island, in which elections are subject to laws much more equitable than those for election to the Cortes. The triumph of the Liberal Conservatives, therefore, greatly exasperated the Cubans.

Explosion.—On April 29 the powder-magazines of San José, opposite Havana, exploded. All the gas-holders of the Havana Gaslight Company, and all but one of those of the old gas company, were broken. The prominent buildings damaged were: The Captain-General's palace, the Spanish Bank, the Caja de Ahorros, the cathedral, the Convent of San Felipe, the churches of St. Angel, Santo Cristo and Jesus del Monte, the custom-house, the New Varieties Theatre, the jail, San Lazaro Hospital, the Orphan Asylum, the Western Railroad depot, the Regla Santa Catalina, the Aguirre and San José warehouses, the Cabanas and Carbajal, Julian Alvarez and Bances cigar-factories. Many lives were lost.

The Flour Duty.—In May, accounts from Spain received at Havana were to the effect that the dealers in flour were not satisfied with the commercial arrangement between Spain and the United States, as far as it affects that article in the trade between Cuba and the United States. A committee of flour-merchants waited upon the King to ask his action in their favor on account of the treaty. Conservative papers in Havana made no secret of it, that the home Government intended to reduce the duty on flour imported from Spain in proportion to the reduction that the duties on flour from the United States should experience.

Spanish Abolitionists.—On May 24 the Spanish Abolition Society presented a memorial to the Government, calling attention to the fact that out of 40,000 negroes under Spanish dominion, who ought to have been freed from the modified form of slavery known as "patronage," only 1,500 had hitherto been released.

Newspapers suspended.—On June 11 the tribunal at Havana sentenced the newspaper "El Triunfo" to twenty days' suspension for copying from the New York "World" a passage saying that Spain was trying to sell Cuba. The paper "El Diario de Matanzas" was subjected to the same punishment for copying the same article from "El Triunfo." It was ordered that each of the papers should pay half the costs of the prosecution.

Reciprocity urged.—In June a large number of planters, merchants, and others in Matanzas sent a dispatch to their representative in the Cortes, instructing him to inform the Madrid Government that they learned with displeasure of the abolishment of the discriminating duties, and that they protested earnestly against any resolution that does not decree the free export of sugar, free trade with Spain, and a liberal treaty with the United States.

The Committee of Inquiry.—On June 7 there arrived at Havana five commissioners from Madrid for the purpose of examining into the condition of Cuba and reporting thereon. It became known that the Madrid Government sent these commissioners in haste as soon as they received official notice of the resignation of Captain-General Castillo, in which he drew a vivid but disquieting picture of the financial and political situation of the island. He added in the notification that his age and his shattered health would not permit him to entertain the hope of successfully coping with a condition of affairs which was desperate from every point of view.

The Remedy.—On July 1, in the Chamber of Deputies of the Spanish Cortes, Señor Valdoseza introduced a bill providing for an improvement of the situation of affairs in Cuba. The principal clauses of the bill proper proposed a reduction of the export and an increase of the import duties on sugar, and directed that Spain should negotiate new treaties of commerce in Cuba's interest with foreign nations. Other clauses were intended to effect economies in the Cuban budget, and provide for the conversion of the Cuban debt. The introduction of this bill had been preceded, the day before, by an important interview between Hon. John W. Foster, the American Minister, and Señor Cánovas del Castillo, Prime Minister, and Señor J. de Elmayen, Minister of Foreign Affairs. The Spanish ministers showed a desire to arrive at an equitable commercial arrangement. Mr. Foster assured them that America was animated with amicable views regarding trade with Cuba, and, as far as possible, would feel inclined to meet the views of Spain and Cuba. He declared that the United States had no wish to assume further political responsibilities. He thought, however, that something must be done for Cuba quickly. Mexico would soon be importing sugar into America free. Unless Cuba and the English West India Islands secured equal terms, it was evident that their best market would be lost.

Sugar Prices.—During the summer it was said that planters in Cuba were, to a large extent, bankrupt; that some of them had been obliged to realize in Havana on centrifugal sugars of 92° polarization at three reals the arrobe, in order to redeem the advances received on account of their crops, and that at Cárdenas, for similar reasons, a lot of molasses-sugar was sold at one real per arrobe, and a cargo of molasses at $2 per hogshead. There was, at the time, no abatement in the dejection that reigned on the island. Several Havana firms declared themselves unable to meet their engagements.

New Taxes.—With the month of July a new schedule of rules and tariffs for the collection of contributions for industry and commerce went into force. The rules were so complicated and onerous, and the tariff went into such details, that tax-payers became very despondent over the same. Grocers, for example, were prohibited from selling any of their goods by the barrel or case, and thus obliged to limit their sales to the narrowest retail trade. They at once sent in a protest against such rules. The municipality of Havana augmented its tariff for taxes with some extraordinary items. Every bill for advertisements posted at street-corners, railroad-stations, theatres, or any public place, was made to pay from ten to fifteen cents, silver, according to size. Every advertisement, in cartoon form or framed, hung in front of establishments, was made to pay fifty to seventy-five cents in gold. For every letter written or printed on the exterior of a building, describing the name and class of the establishment within, five cents yearly was charged. Even letters painted on awnings were included.

Financial Reforms.—Simultaneously a decree was published by which the Minister of the Colonies suppressed the sub-intendancies of the treasury, an annual saving of $72,000, after they had been three months in existence. The contemplated reduction of the estimates for expenses in the island to $27,000,000 was looked upon by the tax-payers as merely nominal, for with every exertion the Government has never been able to collect a larger sum for income. Hence the burden of tax-payers was not likely to be lightened, and in the most favorable point of view the so-called reduction was looked upon as merely preventing a further deficit.

Export Duties.—On July 29 a cable-message was received at Havana from Madrid, to the effect that, dating from August 1, the following reduction in export duties would be made: The surtax of 5 per cent. to be abolished, and the existing duty reduced 60 per cent.; the duty to be payable one half in bank-bills at their nominal value.

A Spanish Loan.—In October, news was received that the Spanish Government was negotiating a loan with Parisian bankers for $25,000,000, to relieve the Cuban Treasury until its floating debt could be liquidated. It was also said that the Bank of Spain had handed to the treasury $5,000,000 for urgent expenses.

New Sugar Tariff.—On October 6, King Alfonso signed a decree abolishing the duties levied by Spain upon Cuban sugars, creating differential flag duties upon Spanish West India sugars imported into Spain in foreign vessels, increasing the duties on all foreign sugars, and discriminating against nations like England and the United States, not having treaties with

Spain. The duties on Cuban and Porto Rican sugars to be abolished Oct. 1, and foreign sugars to be increased on Jan. 1, 1885.

Plantation Wages.—In November a meeting was held by Manzanillo planters for the purpose of regulating and determining the wages to be paid during the coming season, the following figures being agreed upon: Ordinary field and factory laborers, 65 cents a day; cartmen, 73 cents a day of eleven working hours; extra labor to be paid at the rate of 7½ cents an hour. Similar agreements were made at Santa Clara, Ranchuelo, and La Esperanza. At the same time it was generally admitted by planters that the low prices of sugar render absolutely necessary the introduction of every improvement in its manufacture, and the most rigid economy, in order to derive any benefit from the industry. Unfortunately, the bad financial condition of the majority of the planters prevents the purchase of new machinery, but large reductions in running expenses have been made. A large number of planters, with their families, have moved to the estates, which they now conduct themselves.

A Sugar-Refinery.—The first sugar-refinery was built in Cuba in 1884, at Cárdenas, at a cost of $673,258. The establishment refines 40,000 kilogrammes daily, or about 1,000 tons monthly, and, allowing for two months of intermission every year, it will produce 10,000 tons yearly, or about one sixth of the sugar consumed in the island. Should the Cuban consumers fail to favor the new enterprise, the company contends that the low price at which it can offer its product will be such that Spain and other countries will find it to their advantage to buy of the Cárdenas refinery.

The Spanish-American Treaty.—The President of the United States, in his message to Congress of Dec. 2, 1884, expressed himself with reference to the Spanish West Indies in the following terms:

> This Government has more than once been called upon of late to take action in fulfillment of its international obligation toward Spain. Agitation in the Island of Cuba hostile to the Spanish Crown having been fomented by persons abusing the sacred rights of hospitality which our territory affords, the officers of this Government have been instructed to exercise vigilance to prevent infractions of our neutrality laws at Key West, and at other points near the Cuban coast. I am happy to say that in the only instance where these precautionary measures were successfully eluded, the offenders, when found in our territory, were subsequently tried and convicted. The growing need of close relationship of intercourse and traffic between the Spanish Antilles and their natural market in the United States, led to the adoption in January last of a commercial agreement looking to that end. This agreement has since been superseded by a more carefully framed and comprehensive convention, which I shall submit to the Senate for approval. It has been the aim of this negotiation to open such a favored reciprocal exchange of productions, carried under the flag of either country, as to make the intercourse between Cuba and Porto Rico and ourselves scarcely less intimate than the commercial movement between our domestic ports, and to insure a removal of the burdens on shipping in the Spanish Indies, of which in the past our ship-owners and ship-masters have so often had cause to complain. The negotiation of this convention has for a time postponed the prosecution of certain claims of our citizens, which were declared to be without the jurisdiction of the late Spanish-American Claims Commission, and which are therefore remitted to diplomatic channels for adjustment. The speedy settlement of these claims will now be urged by this Government.

The treaty that the President submitted to the Senate was not approved.

Commerce.—The following tabular statement shows the chief articles of merchandise imported into Havana in 1883:

Jerked beef, quintals	253,718
Codfish, American, quintals	84,566
Codfish, European, quintals	45,681
Flour, barrels	198,669
Rice from Spain, quintals	3,270
Rice from the East Indies, quintals	941,570
Lard, American, quintals	180,897
Wine, Spanish, pipes	80,010
Oil, olive, jars	26,518
Hogshead-shooks, American	101,977
Box-shooks, American	82,652
Boards, American, 1,000 feet	1,861
Coal, European, tons	176,262
Coal-oil, American, quintals	Not given.

While the sugar-crop of 1883–'84 only produced about 460,000 tons of sugar, that of 1884–'85 was estimated at 700,000 tons.

YEAR.	Local consumption.	Total.
	Tons.	Tons.
1883	40,000	*306,860
1882	40,000	587,859
1881	45,000	449,067
1880	50,000	460,000
1879	50,000	628,985
1878	50,000	474,429
1877	50,000	460,810
1876	55,000	587,748
1875	55,000	661,057
1874	60,000	617,656
1873	60,000	714,960
1872	65,000	625,064
1871	65,000	470,941

* From January 1 to June 30, 1883.

American Trade.—The exports from the United States to Cuba were:

YEAR ENDED JUNE 30.	Total domestic merchandise.	Total foreign merchandise.	Total exports.
	Dollars.	Dollars.	Dollars.
1883	14,567,918	535,785	15,103,703
1884	10,562,880	347,878	10,910,758

The imports from Cuba into the United States in 1883–'84 were:

YEAR ENDED JUNE 30.	Sugar, brown.		Tobacco, leaf.		Cigars.		Total.
	Pounds.	Dollars.	Pounds.	Dollars.	Pounds.	Dollars.	Dollars.
1883	1,139,794,887	50,827,729	10,017,685	5,012,178	781,219	3,069,075	65,544,534
1884	1,191,238,954	48,650,449	11,708,398	5,283,234	860,042	3,144,101	57,181,497

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DAKOTA. Territorial Government. — The following were the Territorial officers during the year: Governor, Nehemiah G. Ordway, succeeded by Gilbert A. Pierce; Secretary, James H. Teller; Treasurer, William H. McVay; Auditor, George L. Ordway; Superintendent of Public Instruction, W. H. H. Beadle; Attorney-General, Alexander Hughes. Supreme Court: Chief-Justice, Alonzo P. Edgerton; Associate Justices, William E. Church, Sandford A. Hudson, Seward Smith, William H. Francis, and C. S. Palmer.

Growth.—The population in 1880 was 135,177; in 1882 it was reliably estimated at 210,000; in 1883, at 330,000; and in 1884, at 400,000, of whom perhaps 250,000 are in southern Dakota and 150,000 in northern Dakota. The tide of immigration that set in four years ago still continues. The returns show that nearly 12,000,000 acres of land in Dakota were disposed of by the Government during the fiscal year ending June 30, 1884. Of this about 6,000,000 acres were to settlers and private parties, and 5,000,000 on claims to the railroads, hereafter to be adjudicated.

The Black Hills.—The region known as the Black Hills, in the southwestern part of Dakota, remote from the other settled portions of the Territory, exhibits a growth during the past year not at all inferior to that which characterized it before. It is largely devoted to mining, being very rich in gold, silver, mica, lead, copper, iron, etc. The gold shipments for the year ending June 30 amounted to $4,500,000, a slight increase over the year previous. The silver shipments, extending from July to December inclusive, amounted to $2,000,000. Litigation closed the principal silver-mine on Jan. 1, so only the shipments for the half year can be given. Recent developments have disclosed the existence of large bodies of a very high grade of silver-ore in what is known as the "Carbonate Camp." Tin mines were discovered in the autumn of 1883, and some progress in developing them was made in 1884. The entire bullion production in three years has been estimated as follows: In 1882, $2,855,127; in 1883, $2,823,000; in 1884, $2,986,847. Very little has been done in the way of developing minerals, with the exception of the gold and silver ores. Something has been done, however, in the way of producing mica, the shipments of this mineral for part of the last year averaging $3,000 a week. The agricultural development of the region during the past year has been very rapid. The neighborhood of the Hills is settled by thriving farmers, with farms in good condition, and in many instances with fine improvements. Lumber and building material are cheap, and the prices of products comparatively high. Substantial school-buildings are being erected in nearly every settlement.

Crops and Stock.—The crops of 1884 have been estimated as follows: Wheat, 30,000,000 bushels; flaxseed, 3,000,000 bushels; corn, 2,500,000 bushels; barley, 2,000,000 bushels; oats, 10,000,000 bushels. The stock interest in the "Bad Lands" is developing rapidly, and there are probably 150,000 head of cattle now ranging on the grazing lands of western and southwestern Dakota.

Timber.—The principal part of the timber in southern Dakota is along Missouri river, and consists of soft maple, cottonwood, oak, ash, hackberry, elm, and some black-walnut. Along the Big Sioux there is considerable timber. Some good-sized bodies of timber are found along the Vermilion and James rivers; but they are isolated and generally several miles apart. Some very fine bodies of timber are found in ravines that make down from the rolling prairies to the streams or bottom-lands. On many of the lakes there is considerable timber. The Black Hills are covered with a heavy growth of pine-timber. Good coal in vast quantities is found in the Black Hills; and on Missouri river and other streams, a few hundred miles above Yankton, large veins of it crop out.

Financial.—The receipts for the year 1884 were:

Balance in treasury Dec. 1, 1883	$208,854 75
From counties	214,081 04
Railroad-tax, 1883	127,836 87
Telegraph Company tax, 1884	738 90
Sale of laws	1,207 00
Tax on insurance companies	10,102 23
Warrants on general fund for credit Insane Hospital fund	1,540 00
Warrants on general fund for credit North Dakota University fund	1,119 05
Bonds from citizens of Grand Forks, construction of observatory	2,997 00
Sale of bonds authorized for construction of various institutions	82,839 22
Total	$650,768 56

The disbursements were:

Paid Auditor's warrants	$156,907 04
Paid counties proportion of railroad-tax	79,199 83
Paid interest on bonds	18,704 25
Exchange, etc	289 08
Paid warrant on construction fund	176,995 80
Balance in treasury Dec. 1, 1884	218,667 56
Total	$650,768 56

The total bonded indebtedness of the Territory is $392,500, bearing interest at 5 and 6 per cent. The current demands upon the Territory have been paid on presentation since March 25, 1882. The assessed valuation of property in 1883 was $69,154,909.82. The valuation of southern Dakota in 1884 was about $44,500,000, and of northern Dakota, about $39,500,000. The valuation of the Territory in 1882 was $44,701,479.35. There are thirty banks in the Territory, with an aggregate capital of $7,551,990.

Railroads.—The following shows the miles of railroad in operation in Dakota, Dec. 31, 1883, and the tax paid on gross earnings for the year 1883:

NAME OF ROAD.	Miles.	Tax.
Northern Pacific and branches ...	612	$59,414 40
Chicago, Milwaukee, and St. Paul	796	21,917 82
Chicago and Northwestern	577	18,707 02
St. Paul, Minneapolis, and Manitoba	420	23,991 65
Chicago, St. Paul, Minneapolis, and Omaha	55¼	840 92
Black Hills and Fort Pierre	15	2,464 56
Total	2,475¼	$127,336 37

Two thirds of this amount is returned to the counties through which the various railways run, in proportion to the number of miles traversing each county, so that the Territory realized from the 1883 tax the sum of $42,445.45. The gross earnings for that year were $5,273,944.71.

The following table shows the tax and mileage since 1879:

YEAR.	No. of miles.	Amount of tax.
1879	449	$14,728 41
1880	825	22,583 69
1881	1,596	35,618 39
1882	1,947¼	77,608 61
1883	2,475¼	127,336 37

One road, the Fargo and Southern, was completed during 1884, and extends from Fargo south to Ortonville, 122 miles. It is proposed to extend the line next year south to Flandreau, in Moody county, thus connecting the northern and southern portions of the Territory. There are now in operation about 3,000 miles of railway in the Territory.

Education.—The public-school system embraces common or ungraded schools, graded and high schools, two normal schools, one agricultural college, and two universities—one each for South Dakota and North Dakota. The laws are administered by school-district corporations in fifteen of the oldest counties, and by school-township corporations in all other counties. To a limited extent in cities, towns, and villages, the schools are under boards of education created by one general law and many special acts. The following statistics are summarized for June 30, 1884, the close of the school year:

School townships organized	567
School districts organized	1,043
Persons, June 1. 1884, between ages of 7 and 20 years.	77,499
Pupils enrolled in schools	50,061
School-houses (graded)	72
School-houses (ungraded)	1,849
Sittings in school-houses	69,560
Graded schools	69
Ungraded schools	1,960
Teachers employed, males	863
Teachers employed, females	2,048

MONEY EXPENDED DURING FISCAL YEAR.

School-houses, sites, and appendages	$639,962 83
Teachers' wages	394,785 47
Incidental expenses	135,406 70
Interest on bonds	73,779 22
Other debts and liabilities	70,944 50
Total common-school expenditures	$1,306,878 72
Balance on hand June 30, 1884	296,684 27
Total	$1,603,562 99
Buildings, University of Dakota, Vermilion....	$30,000 00
Buildings, University of North Dakota, Grand Forks	30,000 00
Buildings, Agricultural College, Brookings....	20,000 00
Normal School at Madison	7,000 00
Normal School at Spearfish	5,000 00
Donated by localities to all these institutions ..	30,000 00
Salaries and other expenses in all these institutions	23,000 00
Aggregate cost of public education during year	$1,748,562 99

The University of Dakota, at Vermilion, Clay county, has handsome and substantial stone buildings and ample grounds for all purposes. The university is now in its third year, with 105 students. The University of North Dakota, at Grand Forks, was chartered in 1883 and opened in September, 1884. There were over fifty students in attendance in October. The Agricultural College, at Brookings, was opened recently with forty-five students. A normal school, at Madison, Lake county, has an excellent building, not fully completed. The school is in its second year, with forty-five students. Another normal school is at Spearfish, in Lawrence county. It is now in its second year, with about thirty-five students. The School for Deaf-Mutes is in the eastern part of Sioux Falls. It has a superior building. The blind of the Territory are educated in the Vinton (Iowa) State School by contract with that State. All these schools are free of charge for tuition.

The Catholic Church has the Academy of the Sacred Heart, at Yankton. It is now used as a school for Indian boys, of whom a large number are in attendance. They have also a parochial school in the city of Yankton with ninety pupils. At Deadwood and other places they have similar schools.

Yankton College is under the management of the Association of Congregational Churches; number of students, 106.

Dakota Collegiate Institute, at Sioux Falls, is under the patronage of Baptist churches. Total number of students, 115. It has a normal department.

Pierre University, at the city of that name, under the Presbyterian Church, has an enrollment of thirty-six.

The Methodist Episcopal Church has located a university at Mitchell, with a branch at Ordway, upon which work is progressing. The Baptists have located a college at Tower City, Cass county, which has received an endowment of $100,000. The Presbyterians have located a college at Jamestown, Stutsman Co.

Public Institutions.—The Insane Hospital, at Yankton, has 150 patients. Another asylum has been completed at Jamestown, with accommodations for 50 patients. The Penitentiary, at Sioux Falls, contains over 100 convicts. A new wing was built during the year. The new prison at Bismarck has been completed, but is not yet occupied.

Capital Removal.—In May the Supreme Court reversed Judge Edgerton's decision on the Capital Commission Bill (see "Annual Cyclopædia" for 1883), thus virtually deciding Bismarck, and not Yankton, the legal capital. An appeal has been taken to the Supreme Court of the United States.

Congressional Legislation.—The question of the admission of Dakota as a State has been before Congress in various forms. In December an act passed the Senate for the admission of that portion south of the forty-sixth parallel as the State of Dakota, the northern portion remaining a Territory under the name of Lincoln. It is not probable that it will pass the present House of Representatives. Acts were passed providing for two additional judges for the Territory, to be appointed by the President, and increasing the Council from 12 to 24, and the House of Representatives from 24 to 48.

Political.—A Republican Territorial Convention was held at Huron on the 23d of April, which chose delegates and alternates to the Chicago Convention. A second convention of the same party met at Pierre on the 17th of September, and nominated Oscar S. Gifford for delegate to Congress. A resolution was passed urging upon Congress the recognition of the claim made by Dakota for the division of the Territory on the forty-sixth parallel, and the admission of the southern half as a State. Two Democratic Conventions were also held; the nominee for delegate to Congress was John R. Wilson. The Democrats also declared in favor of a division of the Territory. At the election, on the 4th of November, Gifford was successful by a vote of 71,579 against 15,124 for Wilson. The Legislature is almost unanimously Republican. North Dakota cast 32,358 and South Dakota 54,411 votes.

County-Seat Troubles.—Toward the close of the year serious difficulties arose in several counties concerning the location of the county-seats. Violent possession was taken of the records, and mob law prevailed for a time.

DECORATIVE ART IN AMERICA. The impetus that decorative art has received in this country is due, more than to any other cause, to the Centennial Exposition of 1876. Like all other nations, we had the desire to ornament; but, from the earlier days of our national life until our centennial was completed, but little was done that we are now willing to place under this head. Many fine specimens of work in wood still remain in the old colonial houses of New England, New York, and Virginia. In the rooms of the Historical Society at Newport there is a fine specimen in some pulpit-stairs that antedate the Revolution. But such work as this was done by workmen trained abroad, and is foreign in spirit and tradition. That which distinguishes decorative work now done in this country is its departure. It is too early to speak of any national school of decoration; but in manner, methods, and materials there is a notable divergence from the decorative art of other countries. This is not the result of intention, but is due to the circumstances of our national existence, and of these chiefly to our isolated position among nations. The revival of decoration in France and England owes its character to the vast stores of art-treasures in museums, inherited properties, and other repositories. Our national life has been too brief, and our national energies too much absorbed in other and more necessary directions, to accumulate these, even were it possible. Thus, inevitably, we have been thrown in great measure on ourselves and our own surroundings.

This being the case, fortunately, the decorative movement has been for the most part in the hands of men trained in the fine arts, and versed in the traditions and literature of art. This has given the necessary artistic balance to our progress, which with men less well equipped might not have been preserved. It is curious to note, and it is a lesson in national economics, how the artistic spirit reacts in the service of commercial ends. Neither France nor England underestimates the value of art-industries as factors of the national wealth; while we are but tardily awaking to the conception of decorative art as anything more than the luxury of the moment, interesting chiefly to the individual. But let us see how this interaction takes place. The artist is an insistent person: what he wants he must have; the color, the texture, must be that and none other. It will be readily seen how poorly equipped we were in materials alone for any important decorative work, when we remember the character of the stuffs from American looms ten years ago. This was but one of the difficulties that the artist met in every direction. The Associated Artists in the beginning of their work provided for it artistic stuffs gathered from Europe and the East. When these were exhausted, the same difficulty was presented again. The result has been the successful manufacture of art-stuffs in this country, equal in texture and color to those found in older countries, and these have found a limited sale abroad.

Stained Glass.—The most important results have been those in stained glass. It is not amiss to say that American glass, for depth and beauty of color, and for its adaptability to artistic possibilities hitherto unattempted, now surpasses that manufactured in any other country. This is primarily due to John La Farge, the artist, and illustrates, more completely than any other branch of the decorative movement, its general course. Incapacitated for his profession as a painter by ill health, Mr. La Farge, long a student of decorative art, particularly that of Japan, turned his attention to decoration. In no branch of his art had he more distinguished himself than as a colorist; and when he attempted thus to express himself in glass, the English and other foreign glass, in certain ways, gave him unsatisfactory results. This led to experiments that resulted in what is technically known as "opalescent glass," the most important modern discovery in stained glass. Opalescent glass is glass that carries with it its own complementary color. This is accomplished by the union of certain soluble and insoluble particles with the glass, and arresting the fusion at a certain point. This secures refracting powers in the glass that results in a sense, more or less powerful, of the complementary color. The artistic advantage is, that the glass carries with it its own harmony, and in its combinations becomes much more amenable to the artist's purposes than is possible in juxtapositions of positive tints. The ultimate result is, that it allows for artistic possibilities, without the use of paint, that were before impossible. This is still further emphasized by the realization of "textures" in the glass. These peculiarities make possible almost any artistic scheme.

Another important contribution to this new work in stained glass is the use of "cracked jewels." Glass "jewels" have long been in use, and their name suggests their form and value. These, when split and used with irregular facets, are called "cracked jewels." They find place now in almost every important work in stained glass, but are seen to best advantage in architectural and purely ornamental forms. Sometimes they form the background for figures, when their angles, throwing off the light in every direction, present a brilliantly flashing surface. This use of "cracked jewels" gives the glass a value, by artificial light, before unknown, and has led to the use of glass in mosaics—a matter deserving further attention.

The more significant result of the manufacture of opalescent glass is, that it allows for picturesque as well as decorative effects. The mingling of tints that the brush can compel to blend colors and secure harmonies, here inheres in the glass. The best instance of this, and that which best illustrates the various artistic resources in the American glass, is the Black memorial window in Trinity Church, Boston. The subject of the window is the Apocalyptic vision of the bride adorned for her husband, symbolizing the Church. The treatment is poetic and picturesque. At the base of the window, leaning against a pillar, is St. John, seated and looking up, as the angel standing bids him, at the heavenly vision. With her feet on the clouds stands the bride, with her maids arranging her resplendent draperies. Forming the arch of the window, and as it were in the perspective of the background, is the jeweled architecture of the New Jerusalem. Here are all the conditions of a picture expressed entirely in glass, with the exception of the faces and hands, which are painted, and at the same time one of the most splendidly decorative works. The window is most fortunately placed for comparison among windows from Morris, Oudinot, and the most famous manufacturers of stained glass in England and France.

What may be accomplished by selecting glass with reference to textures alone, is finely shown in a large window made by L. C. Tiffany & Co. The design is a mermaid seated beneath the waves, holding in her hand a string of pearls, while her long amber hair drops about her body. Around her, making the decorative forms, are various species of sea-fruit, shells, and other marine objects. In this there is no paint whatever, even in the face, the haunting expression of which shows what can be done in this respect in the glass alone. The wave-forms, the feeling of water, the wrinkled texture of the sea-weeds, the iridescence of the shells, the gleam of the fish, the corals, pearls, and draperies, are each simply from the advantage taken of happy accidents in the glass taking their part in the general scheme. It can be readily seen how such material aid has extended the limits of decorative effects. These are, in fact, bounded only by mechanical difficulties. To escape from these, Mr. La Farge was led to experiment in fusing glass instead of leading. A small panel in a window in the public library at Quincy, Mass., furnishes a remarkable instance of what can be accomplished in this way. The design is a scholar reading, taken from an old Roman diptych carved in ivory. This figure contains two thousand pieces of glass, at least one thousand of which are fused. Many of these pieces are so small that they were handled with pincers, as the jeweler handles stones. Seven pieces make the ear, and their united size is within the compass of the little finger nail. The head is bald, and the sutures of the skull are carefully observed. The union of these pieces is all done by fusing, and the result preserves the illusion of the brush. This is a costly process; the glass returns to the kiln again and again, some of the pieces being fired nine times. But this panel is not made entirely by fusing; we find here also an instance of that thread-like leading process, which is due also to Mr. La Farge. A better instance of this, however, is a hall-window for Mr. Frederick Ames, of Boston. The design is a group of hollyhocks in bloom against a slope of turf, beyond which stretches a field of brown stubble, and in the distance a soft blue sky. With the exception of the bank, in which the leads contribute to the effect, there is no evidence of their use. The curved outline and sense of depth in the flowers produced with many separate pieces of glass are unbroken to the eye. In appearance the window might be the work of the brush, and in delicacy of execution, color, and transparence it has the quality of a water-color painting, which it in fact resembles without losing anything of its decorative character. Such work as this finds no parallel in the stained glass of any other country.

The most conspicuous example of glass mosaics is that by L. C. Tiffany & Co., in the panel behind the pulpit of the Church of the Divine Paternity, New York. The center figure, that of Uriel, the angel of light, is done partly in paint on plaster, but chiefly in glass. Surrounding him are archaic forms supplying the necessary symbolism, and by means of it the decorative color. These are in mosaics of glass jewels imbedded in the plaster. The decorative effect is of a bluish tone, deepening, fading, and always changing, which rests above the design, pierced by myriad rays of light thrown off by the facets of the jewels. The value of the decoration is even greater by night, as it then receives the greater strength of the artificial light. Such mosaic panels have been introduced in the decoration of the White House at Washington, and in the Union League Club Building of New York city. But work in mosaic is not confined to jeweled glass. Very interesting effects are produced by flat mosaics of pearl-toned and iridescent glass. In the gallery of the Presbyterian Church in New York, more familiarly known as the Brick Church, is found an ornament modeled in composition and inlaid with opalescent glass, which, when seen from below, resembles carving in ivory inlaid with mother-of-pearl. The door-frames leading into the pulpit consist of inlays of bronze-toned mosaics, which prove so successful that they have been introduced into private houses. Cornices and center-pieces of opalescent and shell-tinted mosaics are now making their way, as are also panels to be inserted in furniture.

Inlaid Work.—Inlays of other kinds, and in more costly materials, are found in a few houses. The rapid increase of wealth, and its accumulation in the hands of few persons, have at least been serviceable to decorative art, since it has allowed for what we must be permitted to call experiments in the first instance, and for the use of material such as only great wealth can command. The residence, known as the Villard house, constitutes one wing of a group of houses built after the model of an Italian palace. The decoration of the interior, which is of the most luxurious description, corresponds with the date and period of the architecture. The walls of the main hall are paneled throughout in Siena marble. The ceiling is groined and enriched with the most delicate ornamentation, Renaissance in character, in marble inlays. The drawing-room suite continues the same style of ornamentation in mahogany inlaid with white mahogany and mother-of-pearl. The mechanical perfection of this work, all done in this country, deserves mention as well as its artistic merit.

The inlays in the house of Cornelius Vanderbilt reproduce in an elaborate manner decorative work of the fifteenth century, and by methods and processes that have arisen directly out of the exigencies of the effect to be produced. The ceiling of the dining-room is coffered and divided into panels, some of which are filled with glass, since the room serves also as a picture-gallery. The beams are oak, inlaid with a double Greek fret of mother-of-pearl. The panels are of mahogany, carved in relief and inlaid and overlaid with pearl, bronze, marbles, and corals. The object of this decoration is to secure certain color-effects for the designs, and the processes by which these are arrived at are novel and interesting. There are four figure-panels—Ceres, Bacchus, Pomona, and Actæon. These figures were modeled by Augustus St. Gaudens for John La Farge. The Bacchus is the figure of a youth, with slight drapery; in one hand he holds a beaker aloft, the other rests on a sturdy vine, the foliage of which crowns him and falls on the other side. The flesh-tints are rendered in Siena marble overlaying the wood. The beaker is in mother-of-pearl, and the vine in dull-green bronze, one of the many alloys used in the decoration that were experiments for the special end in view. In the Pomona, and in several of the ornamental panels, these alloys play an even more important part.

The Pomona is a graceful conception, beautiful both in line and color. The flesh-tones, as of all the figures, are in Siena marble, and the drapery of white mahogany and holly, the slight differentiation of tint and texture proving very successful. The figure bends back a branch hung with golden fruit, which she prepares to cut with a gleaming knife of pearl. None of the panels exceed this in color, in which the green serpentine of the foliage and the fruit of burnished bronze make fine harmony with the pearl, marble, and woods. In the ornamental panels iridescent alloys mingle with ivory, coral, and marbles, and at each end of the room the head of Apollo in golden *repoussé* bronze makes a conspicuous ornament. These panels are each surrounded by a wreath of hammered bronze, which leads the color up to the egg-and-tongue molding of old oak that forms the panels. The luxuriance of the materials must not divert the mind from the primary artistic intention, the color-effects to which these simply contribute, and which in the case of the metallic alloys are the results of much consideration. But the ultimate gain to decorative art is of wider and more permanent character, since the formulas serve as memoranda for the future.

Sculpture.—But little decoration has been done in pure sculpture, owing partly to the expense of such work, and to the few sculptors who can produce it. That done, however, has been of high character. In the Villard house the panels above the mantel of the main hall and dining-room are carved in relief. That of the main hall is the figure of "Peace," a woman, life-size, seated with two children by her knee, cut in low relief in Siena marble. In the dining-room the sculpture makes the frieze of the panels of Verona marble that line the end of the room. This arrangement makes it the most magnificent piece of decorative sculpture yet produced. The three figures "Joy," "Moderation," and "Hospitality" are, in fact, statues, since they are thrown into such high relief. The figures are full length, but seated, each clasping the knees and holding ribbons that connect them. The effect from below is that of prominent medallions. The work is by

Louis St. Gaudens, who modeled also the figure of "Victory" in the Union League Club Building. The caryatides "Peace" and "Love," for the hall-mantel of Cornelius Vanderbilt, are by Augustus St. Gaudens. It remains only to notice the clock in the main hall confronting the grand stairway of the Villard house, one of its most decorative features. The clock is set in the marble of which the hall is paneled, and makes a center of waving silver rays in a square formed by the signs of the zodiac, cut in very slight relief.

Relief in Plaster.—Interesting experiments are now being tried for the decoration of a Washington house by John La Farge, in which decoration in relief in plaster serves as the basis for polychromy. The effect desired is to secure the results of modeling, with the addition of color, and in a way more easily arrived at than by the expensive processes and materials of the Vanderbilt house. The decoration back of the pulpit of the Brick Church in New York city is work of this kind. In this a large cross with early Christian symbolic ornament has been modeled in plaster, and, by the use of enamel paints, lasting and varied color is given. In the ceiling under consideration, the ornament, consisting of figures, ribbons, and garlands, is in delicate relief. The ground is given an ivory tint, and the ornamentation is brought out in color. Thus, flesh-tints detach the figures from the ground, the foliage appears in pale-green metallic tones, the garlands suggest their varied tints, and pale blues and pinks appear in the draperies. The process involves some artistic secrets, and, if it is found that the color will withstand the action of the air, and other ravages of time, it will prove valuable.

Canvas. — The name of Francis Lathrop is associated with a decoration peculiar to him. This consists in modeling the ornament in canvas, and afterward treating it with color. The modeling is done with some composition which is the result of Mr. Lathrop's experiments, a composition that will not crack and is warranted to endure.' The panels between the beams of the dining-room of the Villard house is work of this kind, as are also the ceiling of the hall of the country place of Charles J. Osborne, at Mamaroneck, and the frieze of the dining-room of the Hoffman House.

Painting.—Decorative painting of the higher order is as yet limited, although conspicuous examples may be mentioned. Among the earliest work of this sort are the panels of the chancel in St. Thomas's Church, New York, by La Farge. These are the *Noli me tangere*, and the visit of the Marys to the sepulchre. The decorative effect is that of tapestries. Work of the same sort is found in Trinity Church, Boston, by La Farge, in two panels in the nave — the Woman of Samaria, and Christ and Nicodemus. A word should be said of the treatment of these Scriptural subjects. The tapestry effect spoken of intimates their decorative value. One instinctively recalls modern ecclesiastical paintings in other countries, and may instance as a conspicuous example the decoration of the Pantheon at Paris, now under way. The decoration there by M. Puvis de Chavannes, the Childhood of St. Genevieve, is the only modern work that we find in artistic sympathy with such work as that of La Farge. This must be limited to the emphasis of the decorative treatment as distinguished from picturesqueness, otherwise La Farge's work is more joyous in color and healthier in sentiment, and, above all, is marked by a certain dramatic quality. The work that is most akin to the French decorative painting is that of Mr. E. R. Blashfield, in a ceiling for Mr. H. McK. Twombley. This consists of a large centerpiece and two end-panels, with symbolic figures enthroned on clouds, attendant cherubs, and other familiar details. But these in Mr. Blashfield's hand have acquired new value; the types are fresh, the composition spirited, and the color soft and buoyant. The color of Blashfield's work should in fact be emphasized, and especially for those opalescent qualities particularly to be observed in some decorative panels, "Rhine Wine," "Red Wine," and "Champagne," considered before in glass.

The most complete example of painted decoration is the water-color room of Cornelius Vanderbilt, by La Farge. The room is, in fact, a corridor, leading from the dining-room to the smoking-room, divided by pillars of Siena marble, with a central passage and arcades. The ceiling is vaulted, and, with the spaces made by the arches and the tympana of the sides, is covered with decorative paintings. The principal panels are filled with allegorical representations of the senses and the seasons. These can not be described in detail, but represent arrangements of line and color that, while attractive as pictures, are the flowering, as it were, of the tint of the room, the combination of Siena marble and wall-hangings of *écru velours* and gold.

Mr. Robert Blum and Mr. T. W. Dewing are each identified with decorative painting distinctly specific and individual. In the house of Charles J. Osborne, at Mamaroneck, are ceilings by each of these artists. That of Mr. Dewing, in a small boudoir, has a central panel in which a beautiful arrangement of three female figures, lying on masses of blossoms and holding ribbons, symbolize "Spring." The smaller panels are unique with masses of green leaves, and a sense of light penetrating through. Gold rings hold ribbons on which are Italian legends. There is nothing in this decoration that recalls foreign work. Mr. Dewing's color is personal, and his decorative feeling is distinctly individual. Even in his pictorial work, Mr. Blum has shown decorative tendencies so marked that it was felt he only needed opportunity. His ceiling of Mr. Osborne's house is the conical interior of one of the towers. The decoration begins in waves of color, such as we are familiar with in Japanese work. These waves, neutral tinted and very fine, have the edges defined by a heavy line, which here is a bronzed cord, and is consequently in relief. The decoration proceeds to the top in irregular concentric circles, where sharply edged gilded dragons peer from behind toward the center, with a life-likeness almost too startling for a decorative effect.

These are the most prominent instances of a good deal of work of the kind.

Terra-Cotta.—The use of terra-cotta for decorative purposes in this country is of recent date; but its increase has been so great that its manufacture may be now considered one of the chief art-industries. The principal manufactory is at Perth Amboy, N. J. The country within a ten-mile radius of that place supplies the best clays for that purpose in the United States. The first building in which terra-cotta was made a marked feature was that of the Brooklyn Historical Society. In its service the well-known sculptors Olin Warner and T. W. Bartlett were engaged. The works have now a corps of men under Mr. Mora, and the operations are on an extensive scale. The most important work yet done, with regard to size and the outlay of money, has been the New York Produce Exchange building, in which there are not only bands of terra-cotta and spandrels filled with ornament girdling the immense building, but special designs, including the seals of the States, appropriate allegorical representations, and studies of the fauna and flora of our country, making ornamental medallions. For the Vanderbilt stables, Edward Kenneys has modeled a spirited horse's head; and one of the finest works in character and texture has been the head of an Alderney cow by Mora for a Philadelphia stable. Some interesting results in texture are seen in the buff terra-cotta panels intended for the new Cotton Exchange, in which the peculiar qualities of the cotton from the bursting pod are finely felt. On the Lawrence Building, in South Fifth Avenue, has been made recently a new and successful experiment in rendering the silky sheen of a ribbon, which makes an ornament on the side of the house and holds an inscription. The work on the Broad Street station of the Pennsylvania Railroad, in Philadelphia, is worthy of comment; and in many respects the large arch intended for the Adams Express Company stables at Cincinnati best illustrates how far the work has been carried. This is an allegorical representation of Aurora in her chariot among the clouds, preceded by Loves and attended by Mercury chasing away the Night. The work is in delicate relief, and includes modeling widely varied and a number of textures, all well given. The ornamentation of the chariot, a decorative arrangement of female figures representing the seven days of the week, should be mentioned as an original and beautiful composition. Mr. Mora has undertaken more ambitious work than this for the State House at Trenton, N. J., a decorative band composed of panels illustrating the seven ages of the world in groups of figures. These are not equally successful. The first two, the Stone Age and Architecture, are the best throughout. The figure of the young man in the second frame is almost classic in its breadth. In "Printing," illustrated by Faust, Marguerite, and Mephistopheles, the textures are especially good. In Writing, Navigation, and Modern Science, we have the portraits of Dante, Columbus, and Watt.

The work in terra-cotta has also extended to interiors, in decorative plaques for mantelpieces, and *jardinières* for conservatories, in which the ornament is wrought out with great delicacy. An important adjunct has been the manufacture of bricks with reference to color for building purposes; an instance is afforded in the speckled brick used in the Tiffany houses on Madison Avenue. These bricks are also used for mantel-facings.

Wood-Carving.—It has been said that the decorative movement received its impulse at the Centennial Exposition of 1876. Previous to that time, however, there had been considerable interest in wood-carving in Cincinnati, and many creditable specimens of work were there exhibited. This was due primarily to William and Henry Fry, father and son, Englishmen, who had formerly been employed on the Houses of Parliament. The work was popularized, however, by Benn Pittman, the stenographer, and under him became a social movement. Women of wealth and leisure undertook it with enthusiasm, and the carving of the frame of the great organ of the music-hall of that city was a matter of local pride. Since that time the work has gone steadily forward; and as much has been done by women, the mistresses of homes, many private interiors have been enriched. A singular example is the introduction of wood-carving among the nuns of St. Martin's Convent, Brown County, Ohio, who have adorned their own private chapel with their work.

Accompanying this practical work and serious use of the tools, there has been a second but even more important endeavor. This is the effort to obtain new motives for ornament. The Cincinnati School of Design turned its attention to the flora of Ohio, and has successfully demonstrated the value to decoration of the succory-leaf, of the wild-parsnip, of the form and textures of the buckeye, and other flowers and plants.

Silks.—The manufacture of artistic stuffs arose out of a pressing necessity. It is worth noting that while American silks intended for the commercial world by no means rival the foreign silks, the artistic stuffs that are designed by the Associated Artists, both in texture and design, equal those produced in any country, and now find a limited sale abroad. For greater convenience these silks have been named. The most superb of them in texture is called "Gazonga," meaning five aces, by which the initiated understand that nothing can be better. It unites three tints in different proportions, and presents a broken surface formed by the filaments of the filling passing irregularly through the warp. Through the interstices the under threads are seen. This produces a tone formed by the union of the three colors in the eye, changing and melting from tint to tint as each color is seen in greater or less proportion. The tapestry fabric is woven to meet the needs of the tapestry stitch. Its peculiarity consists in the disproportion of the threads, the filling being a bunch of soft filaments and the warp a single thread. The "Beirut," "Rajah," and "Momie," and the thin silks resembling the Oriental fabrics, have each a special end in view. The Beirut and Momie silks are each to be remarked for their blending of tints produced by different weaving and for their splendid sheen. The Spanish brocade is a somewhat unfortunate name for a textile intended for wall-hangings. This is in pure silk, and silk and cotton. A certain dullness is given to the ground, while the design is brought out in a lustrous brocade. The most striking and original of these new silks is called "Shadow silk," the name being chosen with reference to the use of the design. This can not better be expressed than as a shadow in color, reproducing that shimmering effect of foliage in motion. The texture itself has a twill, and is of great beauty.

The use of design in stuffs produced here is one of the most significant evidences of our progress in decoration. The motives are new, and are used with new meaning. In this respect we are more akin to the Japanese than to any other nation. This does not arise out of any imitative intent, but proceeds legitimately from those conditions that give us our national idiosyncrasies. Thus, in going directly to Nature for new motives, we perceive a freedom in drawing for decorative purposes that finds no parallel in Europe, but we do find one in Japanese art. This, in modern language, is a tendency to realism, and true and healthily balanced as we find it in the hands of men of keen artistic sense, to whom the matter of decoration has chiefly fallen, it is no less decorative, even though it violates the canons of decoration that obtain in Europe.

Wall-Paper.—In the Warren, Fuller & Co. competition for wall-paper designs, the three prizes were taken by Mrs. T. M. Wheeler, Miss Ida L. Clark, and Miss Dora Wheeler, three women educated in the fine arts, over professional designers of this country and Europe. Mrs. Wheeler's design illustrates the character of their work in respect to motives, color, and manner of using them. The honeycomb, bee hive, and clover unite in the design. The clover is drawn with all the waywardness of the natural growth; the bees appear in various perspectives. These, in union with the silver honey-comb of the ground, and the flat disks taken from the straw hives, unite the conventional and real in a manner new and attractive. A wall-paper by Louis C. Tiffany may also be mentioned. The design is an arrangement of the clematis, with cobwebs uniting the various masses of foliage. There is in these a sense of perspective, leaf behind leaf, rendered by tint as well as by line.

Curtains.—The well-known landscape curtain of the Madison Square Theatre, by the Associated Artists, is an instance of picturesque decoration. A landscape-curtain by La Farge carries decorative realism still further. Here we have the foreground carefully brought out in embroidery. Through the middle distance runs a stream, rendered by means of appliqué and embroidery. In the background are distant cloud-effects, and long reaches of perspective, all accomplished without interfering with the value of the decoration. Such work as this is distinctly peculiar to this country. The designs in the stuffs of the Associated Artists are remarkable examples of such effects. A nasturtium-bed, or a mass of climbing vines, serves as the motive for a design. It is the luxuriance of the mass of which we have a sense. This is rendered now with distinct sense of form and emphasis of color, and now with vagueness, fainter tints, and a feeling of light breaking through, which discovers outlines more or less distinct. These qualities blend in a large, impressive design, distributed and connected with great ingenuity over the stuff. The designs on many of the thin silks are curious examples of what Nature will furnish in every detail if proper selection is only used. Such are sprigs of wintergreen leaves and berries, copied and used without adaptation.

Color.—The use of color is equally marked. Less conventional than that of England, less pronounced than that of France, it is distinguished by more subtilty than either. In the language of Science, it illustrates the value of the small interval, and its object is a resultant, not a positive tint. We have seen this illustrated in the Villard house, in which the union of tints in the decoration fills the eye. In the stuffs this intent is more manifest. We find the best opportunity for study of the value of the small interval of color in the embroideries of the Associated Artists; and as an instance of the particular significance of this fact, it may be urged that an illustrative piece was bought and taken to England as a characteristic example of American decoration. In this work the decoration consisted of a mass of flowers in a vase, on a pale-yellow ground. The decorative color begins in the deep red and greens of the foliage, yellows mingle with the reds, and reds with the green, in large proportion of the one and less proportion of the other, as the decoration rises, until the color is lost in pale-yellow roses and foliage, into the ground-tint. Such use of color is not universal, but this particular use of color is American, and finds expression in numerous decorative features.

Embroidery.—Embroidery in this country has taken a high place in decoration, and assumed certain well-established characteristics. Some of the pieces equal anything that has descended to us from the past. American work is executed in a much finer manner than that in England, where decorative embroidery is now so prominent a feature. The stitches fall into no category, but are used only with a view to effect. A conspicuous example is seen in a curtain that was made by Mr. John Lafarge for Cornelius Vanderbilt. This is a reproduction of the cartoons of Raphael, relating the adventures of Æneas in Carthage, a series of decorative panels in solid embroidery, set about a cloth-of-gold center. That which gives the curtain its distinguishing mark is the toning of the gold center into harmony with the embroidered border. This is done by broken lines of colored silks, introducing the tints of the embroidery, through which the sheen of the metal appears, until the color seems not so much a part of the work as to float in changing hues above it.

A series of tapestries produced by Mrs. T. M. Wheeler are, however, the most important addition to decorative embroidery in this country. The method is new, and consists in running the thread with the needle over the filling of the material known as the tapestry fabric, taking up the single thread of the warp. In this way the decoration becomes a part of the body of the stuff, and serves the same end as the Gobelins tapestries of France, which in effect it most resembles. The peculiarity of the stitch is, that it allows for effects before obtainable only in painting with the brush. So marked is this characteristic, that in some of the work recently prodnoed the resemblance to Roman water color washes amounts almost to deception. A series of tapestries of this kind was produced for Cornelius Vanderbilt. The designs were female types, drawn with graceful fancy by Miss Dora Wheeler: "The Spirit of the Air," "The Water-Spirit," "Psyche," "The Spirit of the Flowers," "The Winged Moon." In these the body of the tapestry served for the flesh tints, and the modeling draperies and other accessories were wrought by the needle.

Recent work has carried the artistic spirit much further. Two remarkable pieces are an adaptation of the "Vestals" by Jules Leroux, and a copy of "Titian's Daughter" finely reproducing the delicate modeling of the face, and the superb texture of the drapery. A more significant advance is in the realization of an artistic mood, of the sentiment of twilight in a draped female figure in landscape. The brush could carry this no further. At the same time, the use of the tapestry is preserved, since it requires no framing, and may be made serviceable as a curtain or wall-hanging.

Tiles.—The Low tiles have been one of the most important contributions to decorative art yet produced in this country, and their origin is a curious instance of the assertion in the beginning of this paper as to the influence of the Centennial Exposition on the art-products of the United States. John G. Low, after studying for the fine arts with Couture and Troyon, turned his attention to the painting of interiors, and finally to scene-painting, in which he had much success. At the Centennial Exposition he became interested in the exhibit of English tiles. Since 1840 these have been made by what is known as the "dust-process," the invention of Mr. Prosser, the chief results of which were made known to us by the Minton tiles. Successful as these were, up to this time and after repeated experiments, no one had been able to produce tiles in relief after this process. This was the task that Mr. Low undertook. The peculiarity of the Low tiles is not confined to the relief, but is more popularly understood to lie in the color and glaze. This is a combination of extreme hardness and brilliance of the glaze, united with gradations of tint. Formerly, and in the Minton tiles, the chief object was to secure uniform tint. The tiles were placed in seggars, as china is fired, and the greatest care is taken to keep them level, that the color may be distributed equally over the surface. The Low tile is colored by a method exactly the reverse. The tiles are placed flat in boxes, and these are separated by fire-clay rolled by the hand, and inevitably of uneven thickness. The boxes are placed on one another in bunks, and the uneven pressure, first inclining to one side, again to the other, causes the tint to flow unevenly over the surface, and results in those gradations of tint that are the great charm of the Low tile.

The work has by no means ceased with these results. Continued experiments have produced a tile molding by means of the dust-process which is, perhaps, the natural outcome of the relief tile, but, until accomplished by Mr. Low, was considered impossible. The production of new forms has led to new uses of the tile. Their recent introduction into stoves may be mentioned; remodeling of base-burners, in which the tile moldings serve as columns. These moldings receive also ornament in relief, and are distinguished by the same color-effects that we find in the tile. Experiments in flat, dull color, such as the potter would call a smear, are now undertaken with prospects of success. The plastic sketches by the Low process belong rather to pictorial than decorative arts, but may be mentioned as an interesting art-growth of the Low processes. The impetus to decorative tiles given by the Low art tiles has been very great. The large tile-works of Indianapolis, Zanesville, Cleveland, Pittsburg, and Brooklyn, have attempted the same work with more or less success.

Pottery.—The interest in decorative pottery began in Cincinnati in the independent efforts of Miss Louise McLoughlin to secure effects similar to those produced at Limoges. These were measurably successful, but the outcome has been of more importance, since it has produced new wares of great beauty, and independent methods of decoration that are of value. The Ohio clays have proved not only to be adapted to various kinds of pottery, but to have qualities that approach porcelain in delicacy and translucence. The Rockwood pottery is known by a very desirable cream-bodied ware, and the chief direction of its efforts is to the production of household articles of more artistic shapes. The work, however, has been carried much further than this; the finest specimen of ware from this pottery is a pale creamy, translucent body to which a hammered effect has been given. The decoration is modeled and applied, and its careful drawing and harmonious, delicate coloring place it in every way among the best examples of its kind. The work in the natural clays has been very interesting, especially in *pâte sur pâte*, and illustrates the resources in the clays of that locality. The imitations of Doulton and Hispano-Moresque wares have been very good, but are at best but imitations. The Chelsea manufactories of art-pottery have been chiefly devoted to good shapes, and to the production of colors and glazes. The work is chiefly due to Mr. Robinson, whose labors in certain directions have met with great success.

Iron.—Work in iron has been limited for the most part to special orders. Elihu Vedder has designed some fire-backs brought out in cast-iron, that have attracted attention. There have also been some reproductions of Japanese work, a fine sample of which is seen in the Villard house. The work in this country in wrought-iron has been chiefly confined to the reproduction of the work of famous periods. Ferdinand Brothers, of Paterson, N. J., have been thoroughly imbued with the spirit of fifteenth-century work, and to this firm we owe much of the revival of wrought-iron. It is to their credit that they have disdained all the easier methods of producing work that simply resembles the designs they reproduce, but adhere to the legitimate handicraft of the old masters of wrought-iron. They have done something in modern and more realistic designs, and these are executed with the same technical fidelity. A pair of andirons, for example, simulate a crooked branch of oak, with leaves and acorns. These details, by modern mechanical short-cuts, might have been cut out and brazed on. But, on the contrary, they are hammered and drawn out, preserving carefully the drawing and peculiarities of the natural growth. C. A. Wellington & Co., of Boston, must be credited also with admirable work of this sort. Mr. Wellington was once a jeweler, and applies to his new craft the consideration that he gave to his former work.

Tracery.—Some allusion must be made to the introduction of Indian design in this country by Lockwood De Forest, and its adaptation to American wares. After a two-years' sojourn in northern India, Mr. De Forest returned to this country, bringing with him a multitude of samples of the fertile tracery found in the Mohammedan temples of that country. This tracery he has copied for him in wood, brass, and stone by the native workmen, and it is coming into very general use in this country as panels for furniture in brass and wood, registers, window-screens, and numerous other ways. A conspicuous example of its use is in the dining-room ceiling of the house of Charles J. Osborne, at Mamaroneck. The room is paneled in red mahogany, with a frieze of the wood incised in Moorish designs. The ceiling is divided into panels filled with the brass tracery and overlaid with a more open design in perforated wood-carving. The panels are framed in bands of finer wood-carving, and combine to make a ceiling of great richness and beauty.

In General.—While the interest in decorative art has been wide-spread, there are very few buildings that can be mentioned as instances of anything that is either complete or permanent. The most conspicuous example is Trinity Church, Boston, which, from its inception to its completion, was intended to be unique. But this intention, although the church is in a measure finished, and in every way interesting, has not the value of a complete decorative expression, since it is, as it stands, the result of compromises, and some times of effects misapprehended. The Union League Club Building, and the Veterans' room of the Seventh Regiment Armory, are interesting examples of some of the earliest work done. The decoration of the Brick Church on Fifth Avenue, to be remarked for its Byzantine character and use of early Christian symbolism, illustrates the disadvantages under which the artist must work when hampered by the architecture of earlier years. The Metropolitan Opera-House, when finished, will be one of the best examples of coherent decoration. Thus far, nothing permanent can be said to exist, beyond the dome. This marks a new era in the decoration of buildings of this kind in America, and there is no house of the kind in Europe, the decoration of which belongs to any class to which it can be assigned.

The progress of decorative art, however, is not to be found alone in the centers of wealth. From another point of view, its spread throughout the country has been most beneficial: while we find much that is crude and much that is extravagant, the level of appreciation and taste is higher. A point not to be overlooked is, that it has given a new interest to the homes of those who live in the remoter parts of the country. Travelers perceive in the domestic architecture of the humbler sort the influence of the modern revival made known through the agencies only of publications of different kinds. Queen Anne is a household word, and the once glaring monotony of straight lines, white paint, and green blinds has given way before architectural vagaries of gable and peak, and the subdued reds and greens that assimilate so well with the landscape. Probably the greatest gain is in the disassociation of taste, art, and the outlay of money. That which is so apparent outside is even more evident within. For example, the roughly plastered interior is not a surface to be covered over, smoothed down, and coated with glaring white. On the contrary, there is texture in its roughness. The brush-marks are left bold, giving the charm of variety to the surface. This makes a fitting background for color. The most beautiful treatment is with gold and slight admixture of color—red, green, blue—put on in short strokes at different angles. If gold be too expensive, there are tints of subdued red. The paint is thick, and is put on heavily, with curve and sweep. If greater variety is desired, a simple design in stencil is cut and applied in lighter or contrasting tint. Work of this sort is so easy that women have done it unassisted. The wall divisions of frieze, field, and dado are observed, if desired, with equal ease. These can be varied in numerous ways. For example, the dado may be of matting treated with color; the field receives some such attention as is spoken of above; the frieze is of burlap, coffee-sacking stretched on frames, gilded, tinted, and, if desired, receives wall-decoration in broad, simple tints, such as any one may study from so humble a source as a Japanese fan.

The principal source of decoration, that which appeals first, is color. This is evident throughout the country. In some places we find it carried very far, and until such decoration as we find in pictures and *bric-à-brac* may almost be dispensed with. The tint of the room, we may say, is a deep Indian blue. The largest surface is found in the small, all-one pattern of the wall-paper. The doors are treated as panels, and the window-frames as veritable frames. There are seven or eight moldings; these are each given a different tint of blue. The more prominent have a metallic luster due to the mingling of silver or gilt; the recesses are in gold, very dark blue, or deep red, throwing out the moldings. The panels are in lighter tints. The cove is treated in the same way, the tints leading into the lighter blue of the ceilings, which grow still lighter to the center. Again, this treatment unites various tints. There is a hall, for example; the ceiling is yellow pink, the cove leads down through different tints in the molding, the last being burnished iridescent green, into the green field, and is carried again into a dark-red dado. This is daring work, but work that a nice feeling for harmonies in color makes successful.

Another mode of decorating a room, we find, is to take some picture, or piece of drapery, or some choice bit of color, as a starting-point, and carry it throughout the room. No less admirable is the ingenuity often exercised in securing artistic effects. An instance is afforded in the use of tea-chest matting as panels, prominently placed, flanking double doors. These are gilded and painted in broad floral designs of yellow and brown. These tints give the dominant note of the room, and are carried into carpet, curtains, and draperies, which are accented by the introduction in smaller quantities of more positive color. The harmonizing qualities of gold make it always valuable. While its true value is only reached by using it pure, there are still many admirable preparations within reach of humble means.

Draperies make an important element in modern interior decoration. The term "drapery" suggests a distinction that should be made. In its modern acceptation, drapery refers to beauty of line, and this depends on the natural folds of every stuff. Accordingly, the artificial intricacies of hangings and lambrequins have given way before pliable stuffs, arranged with freedom and simplicity. Cotton flannels and yellow cotton have proved more desirable than more expensive mohairs, and, except Madras muslin, no lace has been found more artistically desirable than cheese-cloth. Among colored stuffs, blue denim may be mentioned as among the most valuable. Hangings of thin silk, suitably lined, and jute velours, are included among handsomer stuffs. These are embroidered in borders in color, with gold largely predominating. The peculiarity of this embroidery lies in copying the vagaries of tint and drawing of the natural flower within certain geometrical limits. For such work, quilting-frames long disused are brought out, and revive in a new way an old recreation. A simpler mode of treating these curtains is to outline the forms, and fill them in with thin water-color washes. A common and significant evidence of the appreciation of color is seen in the hangings and coverings of silk mosaics, called "crazy-quilts," many of which show brilliant kaleidoscopic effects. A novel use of work of this kind has been seen in a ceiling, in which was placed a molding of Moorish design over the gay silken fabric. Interior decoration of this sort has fallen chiefly into the hands of women, who have carried their endeavors into more muscular sorts of work. For their own buffets and cabinets they prepare hammered-brass panels, and for their own dining-rooms stamp the leather that covers the furniture.

DELAWARE. State Government.—The following were the State officers during the year: Governor, Charles C. Stockley, Democrat; Secretary of State, William F. Causey; Treasurer, John M. Houston; Auditor, Jesse L. Long; Attorney-General, George Gray; Superintendent of Free Schools, Thomas N. Williams. Judiciary, Supreme Court: Chief-Justice, Joseph P. Comegys; Associate Justices, L. E. Wales (succeeded by William G. Whitely), John W. Houston, and Edward Wootton. Chancellor, Willard Saulsbury.

Finances.—In January, 1884, the State debt amounted to the sum of $864,750, as follows:

Outstanding bonds bearing 4 per cent. interest ..	$625,000 00
School-fund bonds bearing 6 per cent. interest ..	156,750 00
Indebtedness to Delaware College, 6 per cent ...	83,000 00
Amount of State debt Dec. 26, 1884	$864,750 00
Call for bonds Jan. 1, 1885	25,000 00
Amount of State debt after Jan. 1, 1885	$839,750 00

As an offset against its present indebtedness, the State has semi-annual interest-bearing investments, for the general fund, to the amount of $673,050. The State also has investments for the benefit of the free schools to the amount of $1,168,799. The total debt after Jan. 1, 1885, was $839,750; assets in excess of indebtedness, $329,049.

The receipts since Jan. 17, 1884, under the various acts to raise revenue, and from all other sources belonging to the general fund, have amounted to the sum of $123,828.98.

There has been disbursed from the general fund since Jan. 17, 1884, to pay the interest on the public debt, to redeem bonds, and to pay the necessary expenses of State government, the sum of $127,518.43, as follows:

Executive	$2,000 00
Judiciary	11,624 89
Salaries of other State officers	7,489 50
Replenishing Library	680 50
Legislative committee and allowances	8,344 20
Interest on State bonds and bonds redeemed ...	50,000 00
Interest on school-fund bonds..	9,405 00
Interest on debt to Delaware College	2,490 00
Chancellor's reports	200 00
Printing and binding for 1884	4,059 92
Board of Health	50 00
Fish Commissioner	189 86
Adjutant-General appropriation	1,200 00
Adjutant-General's salary	200 00
Appropriation to free schools	25,000 00
Appropriation to colored schools	5,000 00
School-books	4,052 71
Immigration Commissioners	650 00
Express bill	80 85
Total amount of disbursement	$127,518 43

The amount received for the benefit of free schools up to August, 1884, or at the time of the distribution, was $69,149.85, and was distributed as follows:

To New Castle county	$26,047 95
To Kent county	20,040 84
To Sussex county	23,061 06
Total	$69,149 85

The amount received since the distribution in August, for the benefit of free schools, is $17,489.25, and a portion of the same has been disbursed as follows: To the Pennsylvania Institute for the Deaf and Dumb, for board and tuition, etc., $849.11, leaving a net balance in the treasury, for the benefit of free schools, of $16,640.14.

On July 1, 1886, of the outstanding bonds of the State, one hundred and thirty-five $1,000 bonds will fall due.

Educational.—The annual report of the State Superintendent of Free Schools says there is a growing interest in the cause of public education in the State, and the schools are steadily and surely advancing. During the past two years something over $129,000 has been spent in the erection of better and more commodious school-buildings; but a majority of the school-buildings are still unfit for school purposes. In regard to teachers' institutes the report says:

> It is impossible for me to set forth the good that comes of the county institute. In our State, especially, is its value incalculable. We have no normal school for the training of those who desire to become teachers, therefore when the young enter the profession they are almost wholly unprepared, so far as methods of teaching are concerned. The county institute acts as the substitute for the normal schools, and much good has resulted, not only to the young teachers, but also to those who have had many years' experience.

The meetings of the State Teachers' Association are also referred to as having been the means of much good by bringing about a closer union between the teachers and friends of the schools. During the past year twenty-seven public educational meetings were held in different parts of the State, principally in Kent and Sussex counties, and did much toward creating the sentiment in favor of better educational facilities.

During the last school term the total number of colored schools in the State, outside of Wilmington, was 65. The average length of the school term was 4½ months. The highest monthly enrollment was 3,409, and the total amount paid to these schools from all sources was $8,176.28, of which the State paid $4,-987.34; the colored-school tax realized $2,878.-69, and the Delaware Association contributed $315.25. The schools are doing an excellent work, with many promising indications.

The following is a summary of statistics:

> Number of school districts in the State, 421; number of schools, 544, an increase of 29 over 1882; average number of months taught, 7·87; number of white children between six and twenty-one years of age, 35,069 (exclusive of Wilmington); average daily attendance, 17,592; average number enrolled in each district, 49; average daily attendance per district, 33; average cost per pupil on number enrolled, $6.78. Whole number of teachers in the State (including Wilmington), 546; average monthly salary, $32.31; average age of teachers, males, 25·6; females, 22·6 years; number of examinations held, 24; certificates issued—life-grade, 3; first grade, none; second, 56; third, 330; total, 389; permits issued, 63. Amount contributed by the districts, $161,048.33; State appropriation, $52,055.82; total, $213,104.15; amount paid for salaries, $152,591.32; value of school-buildings, $469,956; grounds, $90,952; furniture, $47,148; total, $608,056; number of schools using patent furniture, 276.

Constitutional Amendments. — On this subject, the Governor, in his message to the Legislature of 1885, says:

> The General Assembly, at the last session, with great unanimity, agreed upon what were deemed, after mature and deliberate consideration, proper amendments, three in number, to the Constitution of the State. These amendments having been approved by me, and published as the Constitution requires, are now before you for ratification, if you should adjudge it wise that they become a part of the organic law. The first proposed amendment is a provision for a General Incorporation Act, with exception of railroads and canals. As the propriety of this amendment seems to be conceded by all parties, as far as public dis-

cussion is concerned, or, I may say, by silent acquiescence, your attention is directed to it without further comment, except to recommend it as a wise measure, and one that will prove beneficial to the industrial interests of the State. The second proposed amendment is a proposition for increased representation. This amendment received general discussion in the county of New Castle, whose interests are more closely connected and affected than either of the other counties. I think it fair to accept the popular verdict, as rendered at the last election throughout the State, but especially in the county of New Castle, where the great manufacturing interests centered in the city of Wilmington, and the large and influential body of voters representing and voicing the agricultural interests of the county, united in proclaiming the assent of the people to the change. I gave my approval, believing the proposed change a fair, equal, and just recognition of all the interests affecting both county and State, considering that whatever concerns the legislation and representation of a county or section must be subordinate to the general welfare of the entire State. I believe the proposed amendment is demanded by the exigencies of the times. I believe the recognition of the interests of the important and growing city of Wilmington, in the proposed increased representation for that city, is in keeping with a sound State policy, and will meet the long-expressed wish of the people in the city and rural portions of the county, and will constitute, if ratified, a wholesome check on class legislation, and perpetuate the name of Delaware as a synonym of good, just, and well-ordered government. In the matter of the third and last proposed amendment, the reform of the judiciary system of the State, I would advise that you take into consideration the fact that it has been approved by almost the united bar of the State. Certain it is that there must be a change in our present system in its adaptation at least to the wants of the people of New Castle county. This seems to be generally conceded, and many changes have, from time to time, been suggested to meet the emergencies of the case, but none of them met with general favor. I believe under the present system it is admitted that, by reason of the additional labor and expense attending the sessions of the courts, increased by number and length of term in New Castle county, an increase of the salaries is imperatively demanded and must be acceded to, or this important branch of the public service must suffer and become weakened. Heartily believing that the adoption of this last amendment will prove a public benefit, I commend its ratification by your honorable bodies.

Political.—The Republican State Convention met in Dover on April 17, and chose delegates to the National Convention of the party. The Democratic State Convention met in Dover on the 17th of June, chose delegates to the Democratic National Convention, and pronounced in favor of Senator Bayard as presidential candidate. Another Republican State Convention, held in Dover on the 30th of September, nominated candidates for presidential electors, and, for Congress, Anthony Higgins. With respect to the proposed constitutional amendments, this convention passed the following resolutions:

Resolved, That this convention advises the ratification of the amendments proposed to Article VI of the Constitution relative to the judiciary, as necessary to the establishment of a proper judicial system. The obvious defects of the present Constitution demand the application of some adequate remedy, especially in the construction of the Court of Errors and Appeals; and the accumulation of business consequent upon the increase of population and the development of new and varied branches of industry require that the energies of each of the judges should be devoted to the consideration and dispatch of the legal matters arising out of the exigencies of a growing community. The provisions of the existing system are cumbrous and antiquated, and should be molded into the form which the experience of other States has shown to be safe and judicious.

Resolved, That we disapprove the amendment proposed by the General Assembly of this State to Article II, as being unjust, illusory, and mischievous: it is unjust, because it discriminates between citizens, and denies to the people residing in different sections the equality of representation to which they are entitled; it is illusory, because it falsely pretends to be an equitable remedy for existing wrongs; and it is mischievous, because, if ratified, it will postpone for a generation the adoption of just and adequate measures of reform. Instead of this scheme, which is but a partisan device to secure the possession of political power, the Republican party proposes the division of the State into separate senatorial and representative districts, allotting to each its just and equal proportion of each, and providing that the Senators and Representatives shall be chosen by the people thereof, thus insuring equality of representation as among the citizens residing in different localities, securing such representation to the various sections according to their political views, and destroying the baneful influence of county prejudices and the undue preponderance of disproportionate county population.

At a Democratic State Conventon, held in Dover on the 1st of October, Charles B. Lore was renominated for Congress, and candidates for presidential electors were named. The platform indorses the constitutional amendments. On the 9th of November, Mr. Lore was re-elected by a vote of 17,054 against 12,978 for Higgins. The following was the vote for presidential electors: Republican, 12,951; Democratic, 16,964; scattering, 61. The Legislature is wholly Democratic.

DENMARK, a kingdom in northern Europe. The Constitution is embodied in the charter of June 5, 1849, which was modified in 1855 and 1863, but restored in an altered form in 1866. The executive power is exercised by the King, through a responsible ministry, and the legislative power by the Rigsdag or Diet. The upper house is called the Landsthing, and consists of 66 members, of whom 12 are nominated for life by the Crown, from actual or former representatives in the legislature, and the remainder are elected indirectly by the people for the term of eight years. The popular chamber, called the Folkething, consists of 102 members, elected by direct universal male suffrage for three years. The only classes debarred from the franchise are those who have been recipients of public charity and persons in service who have no households of their own. The former class can regain the right by repaying the sums received. The limitation of age is thirty years. The Folkething decides in the first instance on all money bills presented by the Government. The Rigsdag meets annually on the first Monday in October. The Landsthing appoints every four years four of its members to form with the judges of the Supreme Court the Rigsret, which is the highest tribunal and has cognizance of legislative impeachments.

The Government.—The reigning King is Christian IX, born April 8, 1818, fourth son of Duke William of Schleswig-Holstein-Sonderburg-Glücksburg. He was appointed to the succession by the Treaty of London, concluded May 8, 1852, and the Danish law of succession of 1853, and succeeded to the throne on the death of Frederick VII, Nov. 15, 1863. The heir-apparent is Frederick, born June 3, 1843.

The ministry, first organized June 11, 1875, is composed of the following members: J. B. S. Estrup, Minister of Finance and President of the Council; E. V. R. de Skeel, Minister of the Interior; J. V. M. Nellemann, Minister of Justice and Minister for Iceland; Baron O. D. Rosenörn-Lehn, Minister of Foreign Affairs, appointed Oct. 11, 1875; Commander N. F. Ravn, Minister of the Navy, appointed Jan. 4, 1879, and since April 1, 1881, Minister of War; J. F. Scavenius, Minister of Worship and Public Instruction, appointed Aug. 24, 1880.

Finance.—The budget laid before the Rigsdag in November showed as usual a flourishing state of the public finances. The revenue is estimated at 54,633,000 crowns, the expenditure at 52,787,000 crowns. There was a reserve fund of 19,000,000 crowns, and a balance in the Treasury of not less than 47,500,000 crowns. The public debt does not exceed 197,000,000 crowns, held almost exclusively by Danes. The ministers asked for 18,653,000 crowns for military and naval affairs, items that are invariably cut down by the Folkething. An extraordinary grant of a large sum for the construction of fortresses was demanded, notwithstanding the rejection of the plan, involving the expenditure of 72,000,000 crowns, for the second time in April, and the ministerial losses in the subsequent elections.

Constitutional Crisis.—The Estrup Cabinet, which was appointed in 1875, was in the minority in the lower house from the beginning. It was selected from the Conservative party, which enjoyed the support of the King and possessed a majority of the votes in the Landsthing, while the Folkething, in accord with nearly the entire rural population, was Liberal by a large majority. The Liberals endeavored to force the King to recognize the principle of responsible government, and appoint a ministry in harmony with the sentiment of the country. The business of the Government was carried on passably until in 1881 they took a decided stand, refusing to vote supplies. The King twice dissolved the Rigsdag, but each time found himself confronted with a stronger Liberal majority. He then decreed a provisional budget. In the following session, 42 out of 50 Government bills were buried in committee. Measures emanating from the majority in the Folkething were in return rejected by the Landsthing. The results of the general elections of June, 1884, disappointed the hopes of the ministers that the constituencies would condemn the Liberals for bringing on a legislative dead-lock. The Liberals, who held, the previous session, 73 out of the 102 seats, now returned with 82 members. Copenhagen, which always before elected none but Conservatives, now gave half its votes to the Liberals and sent five Liberal deputies to the Folkething, including two Social-Democrats. The session of the new Rigsdag was interrupted by the burning of the castle of Christiansborg in the beginning of September, and was reopened in October 3. The King for the first time in several years opened the Parliament in person and delivered the customary speech from the throne. He showed no intention of changing his ministers, but appealed to the Rigsdag to approve the oft-rejected project of national defense. The plan is to surround Copenhagen with a ring of fortifications. The Liberals voted against it in former sessions, not merely for purposes of obstruction, but because they believed that these costly fortifications would add but little to the defensive strength of the country. Another project over which the ministry and the majority took issue was that of endowing a state university. The majority voted money for an agricultural college and technical schools, but questioned the utility of state-supported classical education. Although united on these, the chief points in the ministerial programme, the Liberals are supposed by the King and the ministers to be incapable of commanding a working majority and carrying on the Government for any length of time, owing to a division, from religious differences, between Christen Berg, leader of the Moderate Liberals, and the section of advanced views, called the Literary Left, or the Europeans, of which the foremost representatives are Dr. E. Brandes and Hörup.

The Ministry.—The ministry, constituted June 11, 1875, is composed of the following members: President of the Council and Minister of Finance, J. B. S. Estrup; Minister of the Interior, S. H. S. Finsen; Minister of Justice and Minister for Iceland, J. M. V. Nellemann; Minister of Foreign Affairs, Baron O. D. Rosenorn-Lehn, appointed October 11, 1875; Minister of Marine, Commander N. F. Ravn, appointed January 4, 1879; Minister of War, Colonel J. J. Bahnson, appointed September 12, 1884; Minister of Worship and Public Instruction, J. F. von Scavenius, appointed August 24, 1880.

Area and Population.—The area of the kingdom of Denmark is 13,784 square miles; the population, 1,969,039, of which number 234,850 live in the city of Copenhagen, 865,678 in the islands of the Baltic, and 868,511 in the Peninsula of Jutland. The total population was divided as to sex into 967,360 males and 1,001,679 females. The increase in fifteen years was 10·29 per cent. in the cities, and 5·99 per cent. in the rural districts. The proportion who live by agriculture is 39·5 per cent. The land is greatly subdivided under the operation of laws that forbid the consolidation of farms into landed estates. The emigration is mainly to the United States, and has become considerable in recent years: in 1880, 5,667; in 1881, 7,985; in 1882, 11,614.

The dependencies of Denmark are the Faroe Isles, of which the seventeen habitable ones have an area of 512 square miles, and a population returned in 1880 as 11,221; Iceland, with an area of 40,300 square miles, of which 16,100 are habitable, and a population of 72,445; Greenland, with a habitable area of 33,800 square miles and 9,757 inhabitants; and the Danish Antilles, of which Santa Cruz has an area of 82 square miles, St. Thomas of 33 square miles, and St. John of 20 square miles, the population of the three numbering 33,763.

Army and Navy.—The total war strength of the army in 1883 was 50,522 officers and men. Military service is universal and obligatory, beginning at the age of twenty-two, and lasting sixteen years, eight in the line or first ban, and eight in the reserve or second ban. Only a few months of drill and participation in the manœuvres are actually required. With the colors is kept simply a force necessary for garrison duty.

The steam navy numbered 2 ironclad frigates, 8 floating batteries, 8 casemated vessels, 2 torpedo-vessels, and 35 gunboats, torpedo-boats, and unarmored vessels.

Commerce and Navigation.—The imports in 1882 amounted to 253,100,000 crowns, the exports to 188,000,000 crowns (1 crown=26·8 cents). Articles of food were imported to the value of 86,200,000 crowns and exported to the value of 137,200,000; the imports of raw materials amounted to 80,800,000, the exports to 26,800,000 crowns; the imports of manufactured articles to 63,400,000, the exports to 11,900,000 crowns; the imports of machinery, implements, and other means of production to 22,700,000, the exports to 12,100,000 crowns. Of the total imports 97,461,000 crowns came from Germany, 58,607,000 from England, 31,823,000 from Sweden, and 11,917,000 from the United States. Of the total exports the value exported to England was 73,367,000 crowns; to Germany, 60,061,000; to Sweden, 26,663,000; to Norway, 12,184,000; to the United States, 8,650,000. The cargo-tonnage of long-voyage vessels entered in 1882 was 1,532,056, the steam tonnage included in this figure, 705,554 tons; tonnage cleared, 500,077; steam tonnage, 369,565; coasting tonnage entered, 417,466; cleared, 412,426.

The merchant fleet consisted in 1883 of 2,974 sailing-vessels, of 194.422 tons, exclusive of vessels of 4 tons and under, and 240 steamers, of 70,733 tons.

Railroads, Posts, and Telegraphs.—The length of railway in operation in 1884 was 1,769 kilometres, of which 1,491 kilometres belonged to the state.

The number of letters forwarded in 1882 was 27,599,000; of postal-cards, 497,000; of journals, 30,787,000; receipts of the post-office, 4,983,201 crowns; expenses, 4,584,795.

The length of the state telegraph lines in 1882 was 3,653 kilometres, with 10,105 kilometres of wire; the number of dispatches in 1882 was 1,216,307, 486,765 internal and 399,082 international, the rest dispatches of service and in transit.

Finances.—The total receipts of the Treasury in the year ending March 31, 1882, were 53,193,975 crowns; expenditures, 49,784,978 crowns. Receipts in 1882–'83, 53,624,340 crowns; expenditures, 50,749,749 crowns. The budget for 1884–'85 places the total receipts at 53,700,909 crowns, the expenditures at 46,996,552 crowns. Of the receipts, 769,772 crowns are the net profits of the domains, 366,458 of the forests, and 5,557,808 of the railroads and other state assets; 9,267,900 the yield of direct taxes, and 33,518,000 that of the indirect taxes. In the budget of expenditures the public debt stands for 9,724,400 crowns, war expenses for 9,240,817, naval expenses for 5,769,694, the civil list for 1,225,760, civil pensions for 2,623,480, and military pensions for 862,572. The internal debt in 1883 amounted to 186,658,576 crowns, the foreign debt to 13,684,667 crowns, offset by assets valued at 86,649,062 crowns. The cost of the state railroads completed up to March 31, 1883, was 135,668,935 crowns.

DOGS. Dog-shows have been an institution in this country and in England for many years. The bench-shows are generally held in winter or spring, as the animals are in their best health at those seasons, and are often held in connection with shows of poultry, pigeons, and other pets. The popularity of dog-shows has so increased that every city of any size now has a show at least once a year. The first dog-show of any account, or of which there is any record, was held in Newcastle, Eng., in 1855. A bench-show of dogs is generally given by a kennel club. In this country the principal bench-show is given by the Westminster Kennel Club.

The most notable dog-shows have been held at the Crystal Palace, in London, and in Madison Square Garden, New York; in the latter annually for the past six or eight years. The entries in some of the shows have been very numerous, one of the largest lists of the shows at the Garden having over 1,000 names. At the last dog-show at the Crystal Palace there were 1,623 dogs competing. One of them, a St. Bernard, was valued at £10,000, and, strange to say, his only superior in money value was a tiny toy terrier, valued at £20,000. Large sums are given as the totals of premium-lists offered at bench-shows, but many of the prizes are given by outsiders, generally for one of two reasons: either to help along a particular breed, or to react as an advertisement of the donor. The bench-show in New York, in May, 1884, was very successful as an exhibition of dogs, but, owing mainly to the bad weather, was not a financial success. The object of dog-shows is not to make money, but to increase the interest in dogs, and give a chance for breeders from all parts of the world to compare specimens, and by so doing improve the breeds. A non-sporting dog-show, given at the Garden a few months later, was more successful financially.

At the first bench-show in Newcastle, the judges used only their judgment and memory in picking out the best dogs, and as dog-shows became frequent the doctors (as the judges might be called) frequently disagreed, there being many cases on record where a dog that in one show had not even been highly commended (a fourth or fifth prize), in another bore off the first prize, and very likely against many of the same competitors. From this uncertainty, and in order to give a chance to compare specimens properly and accurately, a system of judging by points was invented. This system is probably the one essential thing without which, or something very like it, dog-shows would never have reached their present important position. A number of essential points of a dog are taken, and a numerical value is given to each. If a dog could be found perfect in all his parts—color, coat, and markings—he would score 100. First-class champions of different classes have been scored repeatedly, and by different judges, as high as 98½. It would be very hard for even an expert to find the defects in a dog scoring as high as 97.

The only way to give any account of dogs is to write a short description of each variety known and recognized by what might be called the dog standard of excellence—which the English authority on dogs, Stonehenge, has come to be in this country. In a regular bench show of the Westminster Kennel Club, prizes are offered for numerous breeds of dogs, including those here described, and the last premium-list of the club has entries for different premiums offered for 119 classes of dogs. There is not such a number of breeds as that, as different classes are made for dogs, bitches, puppies, and broken and unbroken specimens, in some of the breeds, and what is called a champion class being provided for extra dogs of many of the varieties. When dog-shows were in their infancy, a ribbon, or in some cases a medal, as a prize, was considered all the recompense that an owner or exhibitor could desire. Now, however, a money-prize, varying at an important show from $10 to $25, is given to the best representative of each class, while a silver or gold medal rewards the winner of second place, and the third and fourth best dogs are awarded ribbons inscribed with the name of the dog and owner, with "Very highly commended," or "Highly ommended," as the case may be.

English Setter.—The points of the English setter may be described as follow:

> The skull has a character peculiar to itself, somewhat between those of the pointer and the cocker-spaniel, not so heavy as the former's and larger than the latter's. It is without the prominence of the occipital bone so remarkable in the pointer, is also narrower between the ears, and there is a decided brow over the eyes. The nose should be long and wide, without any fullness under the eyes. There should be in the average dog-setter at least four inches from the inner corner of the eye to the end of the nose. Between the point and the root of the nose there should be a slight depression (at all events, there should be no fullness), and the eyebrows should rise sharply from it. The nostrils must be wide apart, and large in the openings, and the end should be moist and cool, though many a dog with exceptionally good scenting powers has had a remarkably dry nose, amounting in some cases to roughness like that of shagreen. In all setters the end of the nose should be black, or dark liver-colored, but in the very best-bred whites or lemon and whites pink is often met with. The jaws should be exactly equal in length; a "snipe-nose," or "pig-jaw," as the receding lower one is called, being greatly against its possessor. The ears should be shorter than the pointer's and rounded, but not so much so as those of the spaniel. The "leather" should be thin and soft, carried close to the cheeks, so as not to show the inside, without the slightest tendency to prick the ear, which should be clothed with silky hair little more than two inches in length. The lips also are not so full and pendulous as those of the pointer, but at their angles there should be a slight fullness, not reaching quite to the extent of hanging. The eyes must be full of animation, and of medium size, the best color being a rich brown, and they should be set with their angles straight across. The neck has not the full rounded muscularity of the pointer, being considerably thinner, but still slightly arched, and set into the head without that prominence of the occipital bone which is so remarkable in that dog. It must not be "throaty," though the skin is loose. The shoulders and chest should display great liberty in all directions, with sloping, deep shoulder-blades, and elbows well let down. The chest should be deep rather than wide. An arched loin is desirable, but not to the extent of being "roached" or "wheel-backed," a defect that generally tends to a slow up-and-down gallop. Stifles well bent and set wide apart, to allow the hind-legs to be brought forward with liberty in the gallop. The elbows and toes, which generally go together, should be straight, and if not, the "pigeon-toe" or inturned leg is less objectionable than the out-turn, in which the elbow is confined by its close attachment to the ribs. The arm should be muscular, and the bone fully developed, with strong and broad knees, short pasterns, of which the size in point of bone should be as great as possible, and their slope not exceeding a very slight deviation from the straight line. The hind-legs should be muscular, with plenty of bone, clear, strong hocks, and hairy feet. A great difference of opinion exists as to the comparative merits of the cat-foot and the hare-foot for standing work; for hound-masters invariably select that of the cat. But, as setters are especially required to stand wet and heather, it is imperatively necessary that there should be a good growth of hair between the toes. The flag is in appearance very characteristic of the breed, although it sometimes happens that one or two puppies in a well-bred litter exhibit a curl or other malformation, usually considered indicative of a stain. It is often compared to a cimeter, but it resembles it only in respect of its narrowness, the amount of curl in the blade of this weapon being far too great to make it the model of the setter's flag. The feather must be composed of straight, silky hairs, and beyond the root the less short hair on the flag, the better, especially toward the point, of which the bone should be fine, and the feather tapering with it. In character the setter should display a great amount of "quality," a term difficult of explanation, though fully appreciated by all experienced sportsmen. The general outline is very elegant, and more taking to the eye of the artist than that of the pointer. The texture and feather of coat are much regarded among the setter-breeders, a soft, silky hair without curl being considered a *sine qua non*. The feather should be considerable, and

should fringe the hind as well as the fore legs. The color of coat is not much insisted on among English setters, a great variety being admitted.

Gordon Setter.—The points of the black-tan setter are very nearly the same as those of the English dog, the only deviation being as follows:

The skull is usually a little heavier than that of the English setter, but in other respects it resembles it. The nose, also, is like the English setters, but it is usually a trifle wider. The flag is usually a trifle shorter than that of the English setter, which it otherwise resembles in shape. The coat is generally harder and coarser than that of the English or Irish setter, occasionally with a strong disposition to curl, as in the celebrated champions Reuben and Regent. The color is much insisted upon. The black should be rich, without mixture with the tan, and the latter should be a deep mahogany-red, without any tendency to fawn. It is admitted that the original Gordons were often black, tan, and white; but, as in all our shows the classes are limited to black-tan, the long arguments that have been adduced on that score are now obsolete. A little white on the chest, and a white toe or two, are not objected to; but a decided frill is considered by most judges to be a blemish. The red-tan should be shown on lips, cheeks, throat, spot over the eyes, fore-legs nearly to the elbows, hind-legs up to stifles, and on the under side of the flag, but not running into its long hair.

Irish Setter.—In its points the Irish setter only differs from the English in the following:

The skull is somewhat longer and narrower, the eyebrows being well raised, and the occipital prominence as marked as in the pointer. The nose is a trifle longer, with good width, and square at the end, nostrils wide and open, with the nose itself of a deep mahogany or very dark fleshy color, not pink or black. The eyes should be a rich brown or mahogany color, well set, and full of intelligence; a pale or gooseberry eye is to be avoided. Ears long enough to reach within half an inch or an inch of the end of the nose, and, though more tapering than in the English dog, never coming to a point; they should be set low and close, but well back, and not approaching to the hound's in setting and leather; whiskers red; lips deep, but not pendulous. In frame the Irish dog is higher on the leg than either the English or the black-and-tan, but his elbows are well let down, nevertheless; his shoulders are long and sloping; brisket deep, but never wide; and his back ribs are somewhat shorter than those of his English brethren. Loin good, slightly arched, and well coupled to his hips, but not very wide; quarters slightly sloping, and flag set on rather low, but straight, fine in bone, and beautifully carried. Breeders, however, are giving preference to straight backs like that of Palmerston, with flags set on as high as in the English setter; legs very straight, with good hocks, well-bent stifles, and muscular but not heavy haunches. The feet are hare-like, and moderately hairy between the toes. The flag is clothed with a long, straight comb of hair, never bushy or curly, and this is beautifully displayed on the point. The coat should be somewhat coarser than that of the English setter, being midway between that and the black-and-tan, wavy but not curly, and by no means long. Both hind and fore legs are well feathered but not profusely, and the ears are furnished with feather to the same extent. The color should be a rich blood-red, without any trace of black on the ears or along the back; in many of the best strains, however, a pale color or an occasional tinge of black is shown. A little white on the neck, breast, or toes is by no means objectionable, and there is no doubt that the preponderance of white, so as to constitute what is called "white and red," is met with in some strains.

Pointer.—The most approved pointers are described as follows:

The skull of good size, but not as heavy as in the old Spanish pointer, and in a lesser degree his half-bred descendants; wider across the ear than that of the setter, with the forehead rising well at the brows, showing a decided "stop." A full development of the occipital protuberance is indispensable, and the upper surface should be in two slight rounded flats, with a furrow between. The nose should be long (4 to 4½ inches) and broad, with wide-open nostrils. The end must be moist, and, in health, is cold to the touch. It should be black, or very dark brown, in all but the lemon and whites; but in them it may be a deep flesh-color. It should be cut off square, the teeth meeting evenly. Ears soft in coat, moderately long, and thin in leather, not folding like the hound's, but lying flat and close to the cheeks, and set on low, without any tendency to prick. Eyes soft and of medium size; color brown, varying in shade with that of the coat. Lips well developed, and frothing when at work, but not pendent or flew-like. The neck should be arched toward the head, long and round, without any approach to dewlap or throatiness. It should come out with a graceful sweep from between the shoulder-blades. The shoulders and chest are dependent on each other for their formation. Thus, a wide and hooped chest can not have the blades lying flat against its sides; and, consequently, instead of this, and their sloping backward, as they ought to do in order to give free action, they are upright, short, and fixed. Of course, a certain width is required to give room for the lungs, but the volume required should be obtained by depth rather than width. Behind the blades the ribs should, however, be well arched, but still deep. Depth of back rib is specially important. The loin should be very slightly arched and full of muscle, which should run well over the back ribs; the hips should be wide, with a tendency even to raggedness, and the quarters should droop very slightly from them. These last must be full of firm muscle, and the stifles should be well bent and carried wide apart, so as to allow the hind-legs to be brought well forward in the gallop, instituting a form of action that does not tire. The legs, elbows, and hocks must act in the straight line of progression. Substance of bone is therefore demanded, not only in the shanks but in the joints, the knees and hocks being specially required to be bony. The elbows should be well let down, giving a long upper arm, and should not be turned in or out, the latter being the lesser fault, as the confined elbow limits the action. The reverse is the case with the hocks, which may be turned in rather than out. Both hind and fore pastern should be short, nearly upright, and full of bone. Breeders have long disputed the comparative good qualities of the round, cat-like foot, and the long one, resembling that of the hare. In the pointer, my own opinion is in favor of the cat-foot, with the toes well arched and close together. This is the desideratum of the M. F. H., and I think stands work better than the hare-foot, in which the toes are not arched, but still lie close together. In the setter the great amount of hair to a certain extent condones the inherent weakness of the hare-foot; but in the pointer no such superiority can be claimed. The main point is the closeness of the pads compared with the thickness of the horny covering. The stern must be strong in bone at the root, but should at once be reduced in size as it leaves the body, and then gradually taper to a point. It should be very slightly curved, carried a little above the line of the back, and without the slightest approach to curl at the tip. Of symmetry and quality the pointer should display goodly proportion, as no dog shows more difference between the "gentleman" and his opposite. The texture of coat in the pointer should be soft and mellow, but not absolutely silky. In color there is now little choice, in point of fashion, between the liver and lemon and whites. After them come the black and whites (with or without tan), then the pure black, and lastly the pure liver. Dark liver-ticked is, perhaps, the most beautiful color of all.

Irish Water-Spaniel.—The Irish water-spaniel is the most useful dog for wild-fowl shooting in existence. These spaniels, if properly trained, are the most tractable and obedient of all dogs, and possess in a marked degree the invaluable qualities of never giving up or giving in.

The head is by no means long, with very little brow, but moderately wide. It is covered with curls, rather longer and more open than those of the body, nearly to the eyes, but not so as to be wigged like the poodle. Face very long, and quite bare of curl, the hair being short and smooth, though not glossy; nose broad, and nostrils well developed; teeth strong and level; eyes small and set almost flush without eyebrows. The top-knot is a characteristic of the true breed, and is estimated accordingly. It should fall between and over the eyes in a peaked form. The ears are long, the leather extending, when drawn forward, a little beyond the nose, and the curls with which they are clothed two or three inches beyond. The ears are thickly covered with curls, which gradually lengthen toward the tips. The chest is small compared with most breeds of similar substance. The stifles are almost always straight, giving an appearance of legginess. The legs should be straight, and the feet large but strong; the toes are somewhat open, and covered with short, crisp curls. In all dogs of this breed the legs are thickly clothed with short curls, slightly pendent behind and at the sides, and some have them all round, hanging in ringlets for some time before the annual shedding. No feather like that of the setter should be shown. The front of the hind-legs below the hocks is always bare. The tail is very thick at the root, where it is clothed with very short hair. Beyond the root the hair is short, so as to look as if the tail had been clipped, which it sometimes is at our shows, but the natural bareness of the tail is a true characteristic of the breed. The coat is composed of short curls, not woolly, which betrays the poodle-cross. A soft, flossy coat is objected to as indicative of an admixture with some of the land-spaniels. The color must be a deep, pure liver, without white; but, as in other breeds, a white toe will occasionally appear even on the best-bred litter. The symmetry of this dog is not very great.

Wavy-coated Retriever.—The points of this dog are the following:

The skull should be long, wide, and flat at the top, with a very slight furrow down the middle. Stop by no means pronounced; but the brow not absolutely in a straight line with the nose. The nose and jaws are to be considered from two points of view—first, as to the powers of scent; and, secondly, as to the capacity for carrying a hare or a pheasant without risk of damage. For both purposes the jaws should be long, and for the development of scenting-powers the nose should be wide, the nostrils open, and its end moist and cool. The ears must be small, to suit the ideas of the Labrador fancier. With the setter-cross they are considerably larger. In any case, they should lie close to the head and be set on low. With regard to the hair on them, it must be short in the Labrador, but in the setter-cross it is nearly as long as in the setter itself. The eyes should be of medium size, intelligent, and mild, indicating a good temperament. Whatever be the breed of this dog, his neck should be long enough to allow him to stoop in seeking for the trail. A chumpy neck is especially bad; for, while a little dog may get along on a foot-scent with a short neck, a comparatively large and unwieldy dog tires himself terribly by the necessity for crouching in his fast pace. The loins and back must be wide and deep to enable the retriever to carry a hare over a stone wall, a brook, or a gate. The quarters and stifles must be muscular for the same reason; and to enable the retriever to do his work fast enough to please the modern sportsman, with ease to himself, the stifles should be set wide apart. The shoulders should be long and sloping; otherwise, even with a proper length of neck, the dog can not stoop to a foot-scent without fatigue. The chest should be broad as well as deep, with well-developed back ribs. The legs must not only be long and muscular, but they must be clean and free from gumminess. The knees should be broad, and the hocks well developed and clean. The feet are rather larger proportionately than in the setter, but they should be compact, and the toes well arched, soles thick and strong. The tail in the "Bond Moore" type should be bushy and not feathered, which is the sign of a setter-cross. It should be carried gayly, but not curled over the back. The coat is short, but not so short as in the pointer or the hound; set close, slightly wavy and glossy. The walk of the Labrador is not so loose and shambling as that of the large Newfoundland. The evidences of good temperament should be regarded with great care, since the utility of this dog mainly depends on it. A sour-headed brute, with a vicious look about the eyes, should at once be penalized to the full extent of this point; and a retriever shown with a muzzle on, as has often happened, should be regarded with great suspicion. A dog may be so savage in a show as to require a muzzle, yet perfectly mild and inoffensive in the field; but such cases are exceptional. The color should be a rich black, free from rustiness. In many good imported dogs there is a white star on the breast and a white toe or two; but the fashionable breeders now prefer a total absence of white, and this point is therefore to be estimated accordingly, as long as Dr. Bond Moore and his coadjutors maintain their position.

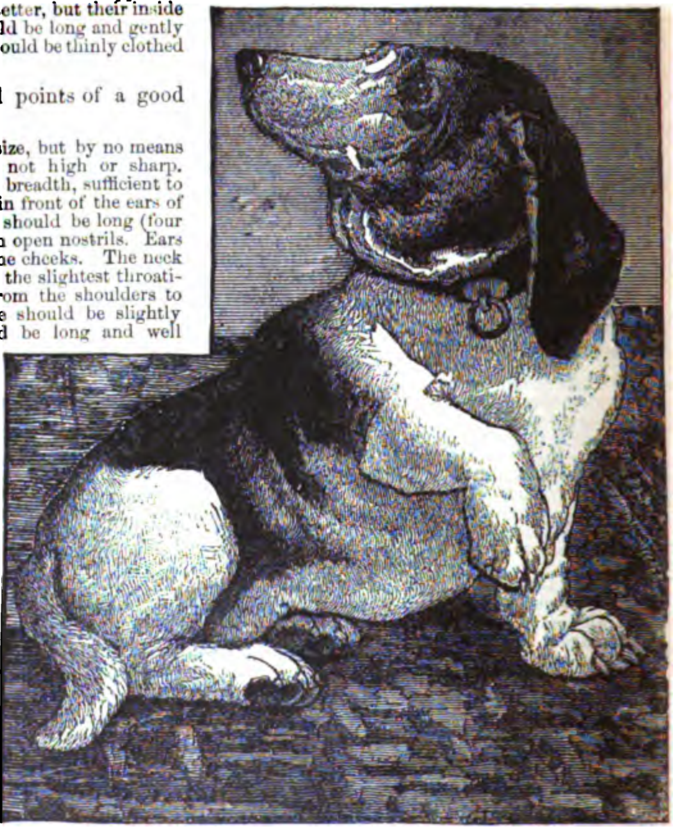
Deer-Hound.—In its skull the deer-hound resembles the large, coarse greyhound, it being long and moderately wide, especially between the ears. There is a very slight rise at the eyebrows, so as to take off what would otherwise be a straight line from tip of nose to occiput. The upper surface is level in both directions. The other points of the dog are as follow:

The jaws should be long, and the teeth level and strong; nostrils open, but not very wide, and the end pointed and black; cheeks well clothed with muscle; but the bone under the eye neither prominent nor hollow. The ears should be small and thin, and carried a trifle higher than those of the smooth greyhound, but should turn over at the tips. Pricked ears are sometimes met with, as in the rough greyhound, but they are not correct; they should be thinly fringed with hair at the edges only; that on their surfaces should be soft and smooth; eyes full and dark hazel, sometimes by preference blue. The neck should be long enough to allow the dog to stoop to the scent at a fast pace, but not so long and tapering as the greyhound's. The chest is deep rather than wide, and in its general formation it resembles that of the greyhound, being shaped with great elegance, and at the same time so that the shoulders can play freely on its sides. The girth of a full-sized dog deer-hound should be at least two inches greater than his height; but a round, unwieldy chest is not to be desired, even if girthing well. Shoulders long, oblique, and muscular. A deep and wide development of muscle filling up the space between wide back ribs and somewhat rugged hips is a desideratum. A good loin should measure twenty-five or twenty-six inches in show condition. The back ribs are often rather shallow, but they must be wide, or what is called "well sprung," and the loin should be arched, drooping to the root of the tail. The elbows and stifles, if well placed, give great liberty of action, and the contrary if they are confined by being too close together; these points, therefore, should be carefully examined. The elbows must be well let down, to give length to the true arm, and should be quite straight. The stifles should be wide apart, and set well forward, to give length to the upper thigh. The high symmetry of this dog is essential to his position as a companionable animal. Great bone and muscle must go to the formation of the legs and quarters; and the bones must be well put together at the knees and hocks, which should be long and well developed. The quarters are deep, but seldom wide, and there is often a considerable slope to the tail. Some of the most successful dogs lately exhibited have been nearly straight-backed; but this shape is not approved by deer-stalkers. The feet should be well arched in the toes, and cat-like; a wide-spreading foot is often met with, but they should be specially condemned. The colors most in request are dark blue, fawn, grizzle, and brindled, the latter with more or less tint of blue. The fawn should have the tips of the ears dark, but some otherwise good fawns are pale throughout. The grizzle generally has a decided tint of blue in it. White is to be avoided either on breast or toes, but it should not disqualify a dog. The coat is coarser on the back than elsewhere; and by many good judges it is thought that even on the back it should be intermediate between silk and wool, and not the coarse hair often met with; and there is no doubt that both kinds of coat are found in some of the best strains. The whole body is clothed with a rough coat, sometimes amounting to shagginess; that of the muzzle is longer in proportion than elsewhere, but the mustache should not be wiry, and should stand out in irregular tufts. There should be no approach to feather on the legs, as in the setter, but their inside should be hairy. The tail should be long and gently curved, without any twist. It should be thinly clothed with hair only.

Fox-Hound.—The essential points of a good fox-hound are these:

The head should be of full size, but by no means heavy; brow pronounced, but not high or sharp. There must be good length and breadth, sufficient to give, in the dog hound, a girth in front of the ears of fully sixteen inches. The nose should be long (four and a half inches) and wide, with open nostrils. Ears set on low, and lying close to the cheeks. The neck must be long and clean, without the slightest throatiness. It should taper nicely from the shoulders to the head, and the upper outline should be slightly convex. The shoulders should be long and well clothed with muscle, without being heavy, especially at the points. They must be well sloped, and the true arm between the front and the elbow must be long and muscular, but free from fat or lumber. The chest should girth over thirty inches in a twenty-four-inch hound, and the back-ribs must be very deep. The back and loin must both be very muscular, running into each other without any contraction or "nipping" between them. The couples must be wide, even to raggedness, and there should be the very slightest arch in the loin, so as to be scarcely perceptible. The hind-quarters or propellers are required to be very strong, and as endurance is of even more consequence than speed, straight stifles are preferred to those much bent, as in the greyhound. Elbows set quite straight, and neither turned in nor out, are a *sine qua non*. They must be well let down by means of the long true arm. Every master of fox-hounds insists on legs as straight as a post, and as strong; size of bone at the ankle being specially regarded as all-important. The desire for straightness is, I think, carried to excess, as the very straight leg soon knuckles over, and this defect may almost always be seen more or less in old stallion hounds. The bone can not, in my opinion, be too large; but I prefer a slight ankle at the knee to a perfectly straight line. The feet in all cases should be round and cat-like, with well-developed knuckles and strong horn, which last is of the utmost importance. The color and coat are not regarded as very important, so long as the former is a "hound-color," and the latter is short, dense, hard, and glossy. Hound-colors are black, tan and white, black and white, and the various "pies" compounded of white and the color of the hare and badger, or yellow, or tan. The stern is gently arched, carried gayly over the back, and slightly fringed with hair below. The end should taper to a point. The symmetry of the fox-hound is considerable, and what is called "quality" is highly regarded.

Basset-Hound.—Mr. Everet Millars was the first man to bring the breed of Basset-hounds into notice, by exhibiting specimens at the Crystal Palace show in London, some years ago. Considerable excitement and amusement was caused in canine circles, and the Basset was pronounced by many to be an old English turnspit, or an abnormal Dachshund. Two


A BASSET-HOUND.

illustrations of Basset-hounds are given by Du Fouilloux, in his "La Véuerie." Du Fouilloux divides them into two varieties: the Artesian, "with full-crooked fore-legs, smooth coats, brave, and having double rows of teeth, like wolves"; the Flemish, "straight-legged, rough-coated, black, and stern curled like a horn." It is more nearly the Artesian variety that has been preserved. There are few more useful all-round dogs to the sportsman than the Basset-hound. In France they are fully appreciated and much in use, deer and roebuck driving being their particular work. Where the full-crooked legged are found to be a little slow, the demi-torse always have speed enough and to spare. They are capital to shoot any kind of fur to, especially hare and rabbits, and are also employed to put up birds. Basset-hounds are not quick breeders, and from in-breeding require much care in rearing.

The head is most perfect when it closest resembles that of the blood-hound. It is long and narrow, with heavy flews, occiput prominent, and forehead wrinkled, to the eyes, which should be kind and show the haw. The general appearance of the head must be one of reposeful dignity. The teeth are small, and the upper jaw sometimes protrudes, which is not a fault, but is called the "bec de lièvre." The ears are very long, long enough to fold well over the nose when drawn forward; so long that, in hunting, the dog often actually treads upon his own ears. They are set on low, and hang loose, like folds of drapery; in texture thin and velvety. The neck is powerful, with heavy dewlaps. Elbows must not turn out. The chest is deep, full, and well framed. Body long and low. Fore-legs short—about four inches, and close-fitting to the chest—to the crooked knee, from where the wrinkled ankle ends in a massive paw, each toe standing out distinctly. The stifles are bent, and the quarters full of muscle, which stands out so that, when one looks at the dog from behind, he is given a round, barrel-like effect. This, with their peculiar waddling gait, goes a long way toward Basset character, a quality easily recognized by the judge, and as desirable as terrier character in a terrier. The stern is coarse underneath, and carried in hound-fashion. The coat is short, smooth, and fine, and has a gloss on it like that of a race-horse. To get this appearance they should be hound-gloved, never brushed. The skin is loose and elastic. The color should be black, white, and tan; the head, shoulders, and quarter a rich tan, and black patches on the back. They are also sometimes hare-pied.

Blood-Hound.—The head is the peculiar feature of this breed; and I have accordingly estimated it at a very high rate. In the male it is large in all its dimensions but width, in which there is a remarkable deficiency. The minor points are as follow:

The upper surface is domed, ending in a blunt point at the occiput; but the brain-case is not developed to the same extent as the jaws, which are very long and wide at the nostrils, hollow and very lean in the cheeks and notably under the eyes. The brows are moderately prominent, and the general expression of the whole head is grand and majestic. The skin covering the forehead and cheeks is wrinkled in a remarkable manner, wholly unlike that of any other dog. These points are not nearly so fully developed in the bitch; but still they are to be demanded in the same proportionate degree. The ears are long enough to overlap one another considerably when drawn together in front of the nose; the leather should be very thin, and should hang forward and close to the cheeks, never showing the slightest tendency to "prick"; they should be covered with very short, silky hair. The eyes are generally hazel, rather small and deeply sunk, showing the third eyelid or "haw," which is frequently, but not always, a deep red; this redness of the haw is, as a rule, an indication of blood-hound cross. The flews are remarkably long and pendent, sometimes falling fully two inches below the angle of the mouth. The neck is long, so as to enable this hound to drop his nose to the ground without altering his pace. In front of the throat there is a considerable dewlap. The chest is rather wide than deep, but in all cases there should be a good girth; shoulders sloping and muscular. The back and back ribs should be wide and deep, the size of the dog necessitating great power in this department. The hips, or "couples," should be especially attended to, and they should be wide, or almost ragged. The legs must be straight and muscular, and the ankles of full size; but it is not to be expected that the upright and powerful pasterns so dear to the M. F. H. should be found in the blood-hound. The feet also are often flat, but they should be, if possible, round and cat-like. In color the blood-hound is either black-and-tan or tan only, as is the case with all black-and-tan breeds. The absence of black is a great defect, but many well-bred litters contain one or two tan puppies without it. The black should extend to the back, the sides, top of the neck, and top of the head. It is seldom a pure black, but more or less mixed with the tan, which should be a deep, rich red. There should be little or no white. The coat should be short and hard on the body, but silky on the ears and top of the head. The stern, like that of all hounds, is carried gayly in a gentle curve, but should not be raised beyond a right angle with the back. The lower side is fringed with hair about two inches long, ending in a point. The symmetry of the blood-hounds, as regarded from an artistic point of view, should be examined carefully.

Saint Bernard.—The head of the Saint Bernard is large and massive, but is without the width of the mastiff's. The dimensions are extended chiefly in height and length, the occipital protuberance being specially marked, and, coupled with the height of brow, serving also to distinguish it from the Newfoundland. The other points are these:

The face is long, and cut off square at the nose, which is intermediate in width between those of the Newfoundland and the mastiff. Lips pendulous, approaching the blood-hound type, but much smaller. Ears of medium size, carried close to the cheeks, and covered with silky hair. Eyes full in size, but deeply sunk, and showing the haw, which is often as red as that of the blood-hound. Great stress is laid by the monks on the line of poll, which is supposed to resemble the white lace bands round the neck and waist of the gown worn by the Benedictine monks, the two being connected by a strip carried up the back. A dog marked with white in the same manner is supposed to be peculiarly consecrated to his work, and is kept most carefully to it. Hence it is in this country also regarded as a characteristic of the breed, but it is seldom met with in anything like a perfect state of development; Monarque being more perfect in this respect than any dog ever exhibited. There is nothing remarkable about the neck, except that there is generally a certain amount of throatiness, to which there is no objection. The body ought to be well proportioned, with a full chest, the girth of which should be double that of the head, and half the length of the body from nose to tip of tail; the loin should be full, and the hips wide. In size and symmetry this breed should be up to a full standard, that is to say, equal to the English mastiff. Indeed, excepting in color, in the dew-claws, and in the shape of head, the smooth

Saint Bernard very closely resembles that dog. He is generally more active, from having been more worked than his English compeer, who for generations has been kept on the chain. Of course, in so large a dog the legs must be straight and strong, while the feet also must be large, in order to avoid sinking through the snow. The last point is greatly insisted on by the monks, who prefer even what would be considered here a splay-foot to a small and compact one. There is no doubt that the double dew-claw on the hind-legs has in some way been introduced into the strain of dogs used at the two Alpine monasteries, but it is impossible to say how. Both Yell and Monarque exhibited this peculiarity, as well as most of the dogs admitted to be imported from the hospice. Gessler, however, showing every other point of the breed in a marked degree, had no dew-claw at all on his hind-legs, and his son Alp, though out of Hedwig, sister to Yell, was equally deficient. It is very doubtful whether this peculiarity is sufficiently permanent in any strain to be an evidence of purity or impurity. The temperament of the Saint Bernard is very similar to that of the mastiff—that is to say, if suitably managed, the dog is capable of great control over his actions, whether in the absence or presence of his owner. When kept on the chain, he is, like other dogs, apt to become savage, and there is almost always an instinctive dislike to tramps and vagabonds. He is a capital watch and guard, and attaches himself strongly to his master or mistress. The color varies greatly. The most common is red and white, the white being preferred when distributed after the pattern described above. Fawn and white, and brindled and white, come next, marked in the same way, the brindle being very rich, with an orange-tawny shade in it, as shown in Yell, and in a lesser degree by his nephew Alp. Sometimes the dog is wholly white, or very nearly so, as in the case of Hospice and Sir C. H. Isham's Leo. The coat in the rough variety is wavy over the body, bushy in the tail, and feathering the legs, being generally silky, but sparsely so on the ears. In the smooth variety the depth and thickness are the points to be regarded.

Mastiff.—The old English mastiff, like the bull-dog, was first bred in England. A well-broken mastiff may be taken out at all hours, and in any company, with the most perfect confidence in his protection. With children he is very gentle. Yet, when he is roused, and set at man or animal, his courage is second only to that of the bull-dog.

The head should be massive, with a broad and flat forehead, ears small and pendent, lying close to the cheek. They should be vine-shaped and set well back. The eyes are small, but mild and intelligent, and are generally brown or hazel. The muzzle must be short, teeth level, and square at the nose. There is sometimes a slight projection of the lower jaw, which may be overlooked; flews deep. The neck should be muscular, and of sufficient length to avoid loss of symmetry; body large, with deep and wide chest, and a powerful loin. The legs should be straight, with large bone, feet round and close. The coat must be fine and short, a slight indication of roughness being allowed on the tail, which should be carried high when the dog is excited. The most desirable color is fallow (fawn) with black muzzle; next to this comes brindle, then red with black muzzle, or black; sometimes there is an admixture of white, which is certainly a defect, though not a great one. Height from twenty-nine to thirty-one inches in the dog, and even more if a fine symmetry can be combined. A dog standing twenty-nine inches ought to weigh, in good condition (not fat), from 120 to 180 pounds.

Colley.—The head, which resembles that of the fox, should be wide between the ears, tapering toward the eyes, which are in consequence set rather close together. The top of the head is flat, and there is little or no occipital protuberance, and a very slightly raised brow; but the facial line is not absolutely straight. The volume of brain is considerable, and the skull looks smaller than it really is, in consequence of the amount of frill in which the occiput is imbedded. The other characteristics are as follow:

The muzzle is very tapering and lean, teeth strong and even, and the muscles of the jaw well developed. The whole face is covered with very short hair. The ears are small and pricked, but turn over at the top outward and slightly forward, with very short hair clothing them. The eyes are set close together, and somewhat obliquely, giving a fox-look that is characteristic of the colley in common with the Spitz or Pomeranian dogs, which resemble him in many other particulars. They are of a medium size, and brown. The shoulders must be oblique and muscular, as the dog has to carry himself, without falling, over all sorts of ground, and often to stop himself when going down-hill at full speed. The loin is strong and very slightly arched, but not more than elegance requires. The back ribs are often shallow, and, if too much so, the defect should be properly estimated. The chest is moderately wide, but should have the necessary volume in depth rather than width, on account of the activity required, which a very wide chest interferes with, giving a rolling, heavy action, unfitted for sheep-tending. The legs are all-important; they must be straight in front, and well bent behind, all being of necessity muscular. The arms should be of full size, both in bone and flesh, elbows quite straight and well let down, and the hocks powerful, clean, and low on the hind-legs. There is often a double dew-claw, hanging only by the skin, but many excellent strains are without one, owing probably to their having been removed for many generations. The feet are rather long than round, but the toes are well arched, and the pads are tough and horny. A large, flat foot is an abomination. The coat is the peculiar feature in this breed, though sufficient stress is not laid upon this point by most judges. In the rough colley it should be shaggy and very thick, so as to create some difficulty in seeing the skin, when the hair is separated by the hands with that view, the undergrowth being woolly, which adds to this difficulty. This under-coat is almost always lighter in color than the upper, and even in those parts that appear black outside it has a yellowish or brownish tinge. Round the neck, and especially on its under side, the outer coat is greatly lengthened, constituting what is called a "ruff" or "frill," which is found in no other English dog, but is well marked in the Pomeranian. In the smooth colley the coat is short, hard, and very close. The color most commonly met with is black-and-tan. In best breeds the black is seldom brilliant, showing the lighter color of the under-coat through, and often itself tinged with tan. The face, spots over the eyes, breast, belly, and legs, below the elbow and hocks, are tan, which should be of a reddish-fawn rather than deep red tinge. In the smooth colley the black is generally deeper and richer, but the tan should be of the same tinge and extent. A good deal of white is met with in some strains, and sometimes the tan is altogether absent, but, *cæteris paribus*, a black-and-tan color without much white is highly preferred. In both varieties the whole body is sometimes tan, or tan mixed with white. The tail is bushy, always has a decided curl, and is carried gayly, though not over the back like the Spitz.

Bull-Terrier.—A bull-terrier takes to water like a retriever, and will learn tricks as fast as a poodle; he is destined to be the pet dog, for all but ladies, in the future.

The skull should be long and flat, wedge-shaped, i. e., wide behind, with the smaller end at the place of the brow, which should not be at all prominent. The line from the occiput to the end of the nose should be as straight as possible, without either brow or hollow in front of the eyes. This line is never absolutely straight, but the nearer it approaches to a straight line the better. The skull should, however, be "broken up," but not to anything like the same extent as in the bull-dog. The jaws must be long and powerful, nose large and black, though many otherwise first-rate dogs have had spotted or "butterfly" noses. Eyes small, black, and sparkling. The upper lip should be as tight over the jaw as possible, any superfluous skin or approach to chop being undesirable. The under lip also should be small. The teeth should be regular in shape, meeting exactly, without any deviation from the straight line. A pig-jaw is as great a fault as being underhung. The ears are always cropped for show; they should be brought to a fine point, and exactly match. In their uncropped state they vary a good deal in shape, and seldom reach their full proportion till after teething. The neck should be rather long, and gracefully set into the shoulders, from which it should taper to the head, without any throatiness or approach to dewlap, as in the bull-dog. The shoulders should be strong and slanting, with a wide and deep chest; but the last ribs are not very deep, though brought well back toward the hips. The back should be short and well furnished with muscle, running forward between the shoulder-blades in a firm bundle on each side. The fore-legs should be long and perfectly straight, the elbows lying in the same plane as the shoulder-points, and not outside them, as in the bull-dog. The hind-legs should also be long and muscular, with straight hocks placed near the ground. The feet are rather long than cat-like, but the toes should be well arched and close together. The coat must be short and close, but hard rather than silky, though when in show condition it should shine from constant friction. The color for show purposes must be pure white, though there are many well-shaped dogs of other colors. This is, however, purely a fancy breed, and there is not the slightest reason why an arbitrary rule should not be made. The tail or stern should be set on low, fine in bone, and carried straight out, without any curl over the back.

Fox-Terrier.—The skull of the fox-terrier should be flat and moderately narrow, broader between the ears and gradually decreasing in width to the eyes. Not much "stop" should be apparent, but there should be more dip in the profile between the forehead and top jaw than is seen in the case of the greyhound. The other points are as follow:

The ears should be V-shaped and rather small, of moderate thickness, and dropping forward closely to the cheek, not hanging by the side of the head like a fox-hound's. The jaw should be strong and muscular, but not too full in the cheek—should be of fair punishing length, but not so as in any way to resemble the greyhound or modern English terrier. There should not be much falling away below the eyes; this part of the head should, however, be moderately chiseled out so as not to go down in a straight slope like a wedge. The nose, toward which the muzzle must slightly taper, should be black. The eyes should be dark-rimmed, small, and rather deep-set, full of fire and life. The teeth should be level and strong. The neck should be clean and muscular, without throatiness, of fair length, and gradually widening to the shoulders. The shoulders should be fine at the points, long and sloping; the chest deep and not too broad. The back should be straight and strong, with no appearance of slackness behind the shoulders; the loin broad and powerful (and particularly so if the back is long) and very slightly arched. The dog should be well ribbed up with deep back ribs, and should not be flat-sided. The hind-quarters should be strong and muscular, quite free from droop or crouch; the thighs long and powerful; hocks near the ground, the dog standing well upon them, like a fox-hound, without much bend in the stifles. The stern should be set on high and carried gayly, but not over the back or curled. It should be of good strength, anything approaching a pipe-stopper tail being especially objectionable. The legs, viewed in any direction, must be straight, showing little or no diminution in the size of the ankles when viewed in front. They should be of strong bone throughout, the elbows working freely just clear of the sides. Both fore and hind legs should be carried straight forward in traveling, the stifles not turning outward. The feet should be round, compact, and not too large, the toes moderately arched and turned neither in nor out. There should be no dew-claws behind. The coat should be smooth but hard, dense, and abundant. In color, white should predominate; brindle or liver markings are objectionable; otherwise, this point is of little or no importance. The dog must present a generally gay, lively, and active appearance. Bone and strength in a small compass are essentials; but this must not be taken to mean that a fox-terrier should be cloggy or in any way coarse. Speed, to some extent, and endurance, must be looked to as well as power, and the symmetry of the fox-hound taken as a model. The terrier, like the hound, must on no account be leggy, neither must he be too short on the leg. He should stand like a cleverly-made hunter, covering a lot of ground, yet with a broad and powerful loin. He will thus attain the highest degree of propelling power, together with the greatest length of stride compatible with the length of his body. Weight, within certain limits, is not a criterion of a terrier's fitness for his work. General shape, size, and contour are the main points, and if a dog can gallop and stay and follow his fox up a drain, it matters little what his weight is to a pound or so, though, roughly speaking, it may be said he should not scale over twenty pounds in show condition.

Skye-Terrier.—The Skye-terrier was bred in the Island of Skye, and has existed for many years on the west coast of Scotland and the adjacent islands. He is a low, weasel-like dog, measuring from the nose to the tip of his tail at least three times his height.

The eyes are small and sharp in expression, varying in shade from hazel to a dark brown. The head has a large appearance when the coat is dry, but, when wetted, it is found to be long and rather narrow between the ears, increasing in width between the eyes, with a flat skull, little or no brow, and a pointed nose. The teeth should be very strong, and meet level. The nose and roof of mouth are a very dark brown or black. The ears are set on rather high, and are by no means large, measuring barely three inches in length; but the hair on them, mixing with that arising from the head, neck, and cheeks, makes them look much longer. The coat on the body and head should be quite long, overhanging the eyes, often so as to conceal them completely. The tail should not be raised above the back, except under great excitement. Weight, sixteen to twenty pounds. The colors most admired are steel-gray, with ears and tail tipped with black, fawn with dark-brown tips, black and pure fawn. The prick-eared Skye-terrier differs from the drop-eared in having a larger head, a shorter body, and a rougher coat. The ears are covered with short, silky hair, and should stand well up, without any outward inclination.

Greyhound. — The head of the greyhound should be large between the ears, and, in a dog from twenty-five inches to twenty-six inches high, should measure at least fourteen and a half inches in circumference midway between the eyes and ears. This point is one that is not usually insisted on, many coursers preferring the narrow and elegant head, which will easily allow the neck-strap to slip over it. The jaw can hardly be too lean, but the muscle should be full, and there should be little or no development of the nasal sinuses. The eye should be full and bright, giving the idea of high spirit and animation. The minor points are these:

There is a very great variety of ears in the different breeds, from the large up-standing ones of the heath-erjock variety to the small and elegantly falling ones of most of our modern greyhounds. The bitch has always a neater and more compact head than her brother, and there is generally a livelier look about the eye; but, though the head is smaller, it is still in the same relative proportion to the whole body, which is more neat and elegant also. The neck is compared to that of the drake; it is certainly not so long or as round, but sometimes approaches very nearly to it. This form will enable the greyhound to seize his game while in full stride without losing his balance, but there are many good killers with short necks. With regard to the chest, there are two things to be considered: capacity for the lodgment of the lungs and heart, and the attainment of that form most conducive to speed and working. It must not be too deep, or the animal is constantly striking it against obstacles; it must not be too wide, or the shoulders are unable to play smoothly upon it. A just relation between these counterbalancing essentials is, therefore, the best form. The shoulders must be so formed as to thrust the fore-legs well forward, and to do this the shoulder-blade must be as oblique as possible. The reason for this is that its muscles may be able to exert their full power upon the arm in bringing it into a straight line with the axis of the shoulder-blade. This alone is a great advantage; but, by the greater angle that it forms with the arm, it also enables the greyhound to bear the shock of a fall upon his legs in coming down from a leap without injury, which is another most important feature. An oblique shoulder is likewise usually accompanied by a longer true-arm, because the point of the shoulder must be raised higher from the elbow to allow of the obliquity, and in proportion to the increased length will the fore-foot be extended forward; thus this form gives longer levers with greater power of leverage, and more space for the lodgment of muscles. From careful measurement of various well-formed legs, it is thought that from the elbow to the knee ought to be at least twice the length from the same point to the ground. In this measurement the dog would be standing on a level surface, with his weight bearing upon both legs, and the measure should be taken in this way, and not from the base of the two middle nails, because in the stride the action is from the ball of the foot, and not from the end of the toes. In variously formed feet there is a difference of nearly an inch less than another with long toes; which latter would, nevertheless, measure from his toe-nails to his knee nearly an inch more than the former. In order to unite the hind and fore quarters, and to assist in fixing the pelvis from which the muscles composing the haunch take their fulcrum, a good back is required, and, when of a good form, it has been compared to a beam. The back is composed of a series of vertebræ, having ribs attached to the sides of the first thirteen. but, in those of the loins, depending alone upon the hip-bones and lateral processes for the lodgment and attachment of muscles. It must be self-evident that every additional inch in length of back increases the stride by that amount exactly; and, therefore, if prolonged indefinitely, it would be advantageous, till counterbalanced by the disadvantages inseparably connected with this form, in consequence of the diminished strength. The length of back should, therefore, be looked for between the neck and the last rib, rather than between the last rib and the hip-bone. The back ribs should be well spread and deep; for, unless they are in this form, a sufficient attachment can not be afforded to the muscles of the loins, which constitute the chief moving-power in drawing the hind-legs forward, and fixing the pelvis. The loins must, therefore, be broad, strong, and deep, and the measure of their strength must be circular. Breadth alone will not do, since the lower muscles require to be well developed as well as the upper, but a good measurement round the loin is a good test of power in that quarter. These are of more importance than the fore-quarters, and are composed of three separate divisions, varying greatly in total and comparative length in different individuals. These three divisions are: the true thigh, between the hip and stifle joints; the false or lower thigh, answering to the leg of a man, and situated between the stifle and hock; and, lastly, the leg, between the hock and foot. The first two of these divisions should be nearly equal in length, and, in most well-proportioned greyhounds, are each about one fifth longer than the lower arm; while the leg, from the hock to the ground, should bear about the same relation to each of the thigh-bones as the fore-pastern does to the arm—that is to say, it should be about one half, generally rather more than less. Many good greyhounds vary much in these proportions; and the stifle-joint is often placed far from midway between the hip-joint and the hock. With a greyhound thus formed, having both the upper and lower thigh-bone one fifth longer than the lower arm, with the hock also placed a little above the level of the knee, and the top of the shoulder-blade only the length of the thigh-bone above the elbow, it follows either that the top of the hind-quarter will be considerably higher than the fore, or that the hind-legs will be bent at the hock and stifle-joint considerably out of the straight line. Either of these forms is conducive to speed; but the latter is the more elegant, and also appears to be the best calculated for preserving the equilibrium in the turn. If the hind-legs are straight, and yet the back is level, the fore-legs must be long, or else there can scarcely be sufficient speed. This form is, however, inferior to the bent hind-legs and correspondingly short anterior extremities. The type of the best formation is seen in the hare, in which there is a still greater disproportion, and, as the greyhound has to cope with her in speed and working, he must, to a certain extent, be formed upon the same model, and so he really is. The feet of the greyhound are met with in two varying but useful forms, the cat-like and the hare-foot. In the former they are round and close, with upstanding knuckles, and by many are much preferred. Such toes are, however, likely to "break down"; and, for use, the hare-foot, longer and flatter, is by many coursers preferred. In any case, a flat, open foot is to be discarded. The tail should be fine, and nicely curved; but this point is only to be looked at as a mark of good breed. The colors preferred are black and red, or fawn, with black muzzles. Black-tan is very rarely seen, but almost every other color is occasionally met with. White greyhounds are by many disliked, being considered delicate, but I do not know that this objection is well founded. The brindled color is supposed, without reason, to be a mark of the bull-dog cross.

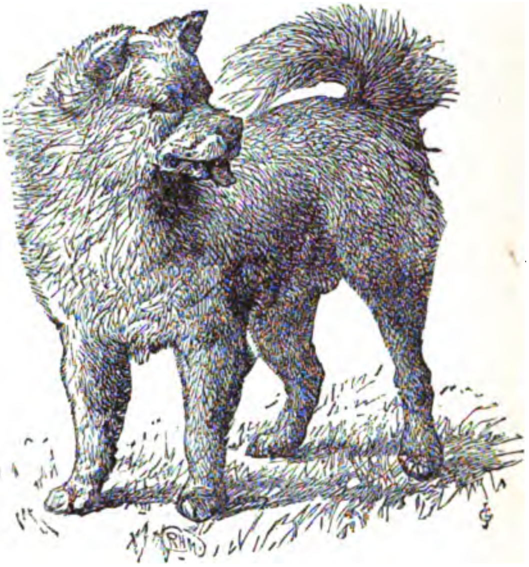
The greyhound proper is used in England to a great extent for public and private coursing matches, a sport little if at all known in this country.

Dog-running.—A great sport in England, especially among the middle and poorer classes, is dog-running, and it gave rise to a new strain of dogs known as whippets, which were produced by inbreeding greyhounds to reduce the size, and then crossing with the bull-terrier to give strength, courage, and endurance. A whippet, when seen alone, is almost a counterpart of a finely-bred greyhound, but it is generally somewhat smaller. If a whippet is seen near an Italian greyhound, there is at once noticed considerable thickening of all the finer beauties of the greyhound, a result of the bull-terrier cross.

Dog-racing has for several years been an institution in parts of this country, more particularly in and about Philadelphia, where there is a considerable English-born population, and at many of the athletic and foot-racing meetings there is what is called a dog handicap. The distance run is generally 200 yards, and a fast-running dog can cover this distance in about one half the time that a two-legged sprinter could do it. The dogs are run in heats of five, and are handicapped, or allowed a start, according to age and size. A dog has in this country always two yards and a half start for each pound that he weighs less than his opponent; in England he would only be allowed two yards start for each pound. The dogs drawn for a heat are held on their marks by their owners or handlers, while a man is stationed twenty yards behind the finishing-tape to wave a white cloth. At the firing of the pistol, each is slipped, and their early instincts having been well developed, they run straight and only need to be urged for an extra burst of speed by the clapping of hands or shouts of their handlers, who in slipping them are very careful not to let a dog lose his start by over-haste. A dog catches his start nearly as quickly as a human sprinter, and quickly gets on full speed. The best handicaps of dogs at Philadelphia have brought about seventy-five dogs to the post, but in all-England handicaps at Manchester or other large towns it is not unusual for 500 dogs to compete, and the racing takes all day. A dog is most carefully trained for his running, his diet consisting of beef, mutton, toast, and hard-boiled eggs, his drink of tea and ale.

Chinese Edible Dog.—At the Crystal Palace Dog-Show, in London, several specimens of a (to us) entirely new breed of dogs were exhibited. It has much the appearance of a Spitz dog, but is far more clumsily built and larger and very fleshy. This is the Chinese edible dog. They are bred in China for the sake of their flesh, and have been developed in that direction in that country for centuries, in much the same manner as the Asiatic breeds of fowls, for quantity rather than quality. These dogs are fed entirely on vegetable food, and their flesh is said to taste like veal.

Pug.—The pug should have a round, monkey-like skull, which should be of considerable girth, but in proportion not so great as that of the bull-dog. The face is short, but again not "bully" or retreating, the end being cut off square; and the teeth must be level; if they are undershot, a cross of the bull is almost always to be relied on. The cheek is very full and muscular. The other points may be summarized thus:



A CHINESE EDIBLE DOG.

The ears are small, vine-shaped, and thin, and should lie moderately flat on the face. They are black, with a slight intermixture of fawn hairs. The eyes are dark brown and full, with a soft expression. There should be no tendency to weep, as in the toy spaniel. A black mole is always demanded on each cheek, with two or three hairs springing from it; the regulation number of these is three, but, of course, it is easy to reduce them to that number. The mask, vent, and wrinkles, must be considered together, as they all depend mainly on color. The wrinkles, it is true, are partly in the skin; but over and above these there should be lines of black, corresponding with them, on the face and forehead. The mask should extend over the whole face as a jet black, reaching a little above the eyes, and the vent should be of the same color. In the Willoughby strain the black generally extends higher on the skull, and has not the same definite edge as in the Morrison pug, in which this point is well shown and greatly insisted upon by its admirers. A trace or black line is exhibted along the top of the back by all perfect pugs; and the clearer this is the better—as with the mask, so with this—the definition is clearer in the Morrison than in the Willoughby pug. When it extends widely over the back it is called a "saddle-mark," and this is often displayed in the Willoughby, though seldom met with in the Morrison strain. The color of the Morrison pug is a rich yellow fawn, while that of the Willoughby is a cold stone. The salmon fawn is never met with in good specimens of either, and is objected to. In the Willoughby the fawn-colored hairs are apt to be tipped with black, but in its rival the fawn-color is pure and unmixed with any darker shade. Of course in interbred specimens the color is often intermediate. The coat is short, soft, and glossy over the whole body, but on the tail it is longer and rougher. A fine tail indicates a bull-cross. The neck is full, stout, and muscular, but without any tendency to dewlap; which again indicates that the bull-dog cross has been resorted to. The body is very thick and strong, with a wide chest and round ribs; the loin should be very muscular, as well as the quarters, giving a general punchy look, almost peculiar to this dog. The legs should be straight, but fine in bone, and should be well clothed with muscle. As to the feet, they must be small, and in any case narrow. In both strains the toes are well split up; but in the Willoughby the shape of the foot is cat-like, while the Morrison strain has a hare-foot. There should be no white on the toes, and the nails should be dark. The tail must curve so that it lies flat on the side, not rising above the back to such an extent as to show daylight through it. The curl should extend to a little more than one circle. The pug should be from ten to twelve inches high, the smaller the better. A good specimen should be very symmetrical.

DOMINION OF CANADA. (For statistics of geography and population, see "Annual Cyclopædia" for 1883.) The year 1884 was remarkable in Canadian annals in many respects. Many vexed public questions in dispute at the beginning were settled before the end of the year. One, the chief of these, is known as "The boundary case." The cause of dispute was, what constituted the western and northern boundaries of the Province of Ontario (formerly Upper Canada). At first the parties to the dispute were the old provinces—Upper and Lower Canada on behalf of Upper Canada, and the Hudson Bay Company. In 1867 the confederation of the British provinces—Canada, Nova Scotia, and New Brunswick—was effected, the name of the union being "The Dominion of Canada." Thenceforward, until 1871, Canada, on behalf of Ontario, maintained the claims formerly set up by the Canadas; but, owing to the acquisition by Canada in 1870 of all the Hudson Bay Company's territories, she, the former opponent of the company's claims, became the warm supporter, leaving Ontario to battle with the Federal authorities. The boundaries set up by the various parties to the dispute are, as to the western: 1. The meridian passing through the northeastern angle of the junction of the Ohio and Mississippi rivers. This line crosses Lake Superior several miles east of the mouth of Pigeon river. It is 89° 9′ 27·16″ W. from Greenwich. 2. The meridian passing through the extreme source of the Mississippi river. This line, taking Lake Itasca, or Turtle Lake, as the source, passes through the western shore of Lake of the Woods. 3. The meridian passing through the northwestern angle of the Lake of the Woods. This is nearly identical with the line through the source of the Mississippi. 4. The height of land between Lake Superior and Lake of the Woods. This would limit Ontario's territory to a point within a few miles of Lake Superior—i. e., to the source of Pigeon river. 5. The White Earth river, a tributary of the Missouri in Montana. This is the first water of the Mississippi that crosses the international boundary. 6. The Rocky Mountains.

Concerning the northern boundaries only two claims were maintained with any degree of persistence: 1. The height of land separating the waters of Hudson Bay from those of Lake Superior. This would have been a very irregular line, extending in some places close to Lake Superior, and in others far north toward Albany river. 2. The Albany river. This, the most natural line, begins near the head of James Bay, and runs nearly west for several hundred miles to the source of the river in Lake Joseph. There were other claims, such as to the mouth of the Nelson river, to the Saskatchewan, and to Lake Athabasca, but they were of no importance.

The Hudson Bay Company in its time maintained the height of land to be both the northern and the western boundary of Upper Canada (Ontario); and Canada, since 1871, has taken a similar stand concerning the northern limits of the province. The royal charter granted in 1670 by Charles II is made the basis of these claims. This charter granted to "the Governor and Company of Adventurers of England trading into Hudson's Bay," "the sole trade and commerce of all these seas, straits, bays, rivers, lakes, creeks, and sounds, in whatsoever latitude they shall be, that lie within the entrance of the straits commonly called Hudson's Straits, together with all the lands and territories upon the countries, coasts, and confines of the seas, bays, lakes, rivers, creeks, and sounds aforesaid that are not already actually possessed by or granted to any of our subjects, or possessed by the subjects of any other Christian prince or state," etc.

Since 1871 Canada has maintained the western boundary of Ontario to be the meridian passing through "the extreme point of land marking the junction of the north and east banks respectively of the Ohio and Mississippi rivers." This claim, advanced by Canada after obtaining control of the Hudson Bay Company's lands, is based on a clause in the "Quebec Act" of 1774. This act, it may be remembered, conceded to the Roman Catholics in Canada all the privileges then enjoyed by their fellows in France, and was passed more to prevent a union with the colonies to the south in their struggles against British oppression than to do justice to the settlers in Canada. By that act Britain conciliated about 60,000 French Roman Catholics, and estranged millions of British subjects, residents in the thirteen colonies along the Atlantic. The clause referred to enacts:

> That all the territories, islands, and countries in North America, belonging to the Crown of Great Britain, bounded on the south by a line from the Bay of Chaleur, along the highlands which divide the rivers that empty themselves into the river St. Lawrence from those which fall into the sea, to a point in 45° of northern latitude, on the eastern bank of the river Connecticut, keeping the same latitude directly west, through Lake Champlain, until, in the same latitude, it meets the river St. Lawrence; from thence up the eastern bank of the said river to Lake Ontario; thence through the Lake Ontario and the river commonly

called Niagara; and thence along by the eastern and southeastern bank of Lake Erie, following the said bank until the same shall be intersected by the northern boundary granted by the charter of the Province of Pennsylvania, in case the same shall be so intersected; and from thence along the said northern and western boundaries of the said province, until the said western boundary strike the Ohio; but in case the said bank of the said lake shall not be found to be so intersected, then following the said bank until it shall arrive at that point of the said bank which shall be nearest to the northwestern angle of the said Province of Pennsylvania, and thence, by a right line, to the said northwestern angle of the said province; and thence along the western boundary of the said province, until it strike the river Ohio; and along the bank of the said river westward, to the banks of the Mississippi, and northward to the southern boundary of the territory granted to the Merchant Adventurers of England trading to Hudson's Bay.

The contention that "northward" means due north, while "westward" follows the course of the Ohio, is purely technical, and was originated in order to secure to the Government of Canada the control of 100,000 square miles of territory that she formerly claimed belonged not to any one except the Province of Ontario. It may be noted that in the older provinces—Ontario, Quebec, etc.—the control of the Crown or public lands belongs to the provincial governments, while in Manitoba and the districts erected out of the acquired Hudson Bay Company's territories, it belongs to the Federal Government. The Government of Canada asserted the northern boundary to be the height of land north of Lake Superior. The Province of Ontario maintained that, at the very least, she was entitled to the territory as far west as the meridian from the source of the Mississippi, or, what is nearly the same, the meridian of the northwestern angle of Lake of the Woods. The first of these is based on the "Quebec Act" already quoted, and depends on the construction placed on the word "northward." In the same sentence the word "westward" means "following the course of the Ohio," and, especially as the maps of that day indicated the Mississippi as flowing nearly due south, the word "northward" means "following the course of the Mississippi." Further confirmation is given to this construction from the fact that in 1774 Sir Guy Carleton, then "Captain-General and Governor-in-Chief of the Province of Quebec," afterward Lord Dorchester, in his commission as Governor of the Province of Quebec, after reciting the clause quoted from the Quebec Act, to the words "until it strikes the river Ohio, and along the bank of the said river, westward, to the banks of the Mississippi," recites, "and northward along the eastern bank of the said river," etc. In support of the northwestern angle of Lake of the Woods, as the western boundary, reference is made to the "Definitive Treaty of Peace and Friendship," signed at Paris in September, 1783, by which Great Britain acknowledged the independence of the United States of America. Article II of that treaty is:

And that all disputes which might arise in future on the subject of the boundaries of the said United States may be prevented, it is hereby agreed and declared that the following are and shall be their boundaries, viz.: From the northwest angle of Nova Scotia, viz., that angle which is formed by a line drawn due north from the source of the St. Croix river to the highlands, along the highlands . . . (the same as quoted in the Quebec Act, except that the line runs through the middle of the St. Lawrence) . . . into Lake Erie; through the middle of said lake, until it arrives at the water communication between that lake and Lake Huron; thence along the middle of said water communication into Lake Huron; thence through the middle of said lake to the water communication between that lake and Lake Superior; thence through Lake Superior, northward of the isles Royal and Philippeaux, to the Long Lake; thence through the middle of said Long Lake, and the water communication between it and the Lake of the Woods; thence through the said lake to the most northwestern point thereof, and from thence on a due west course to the river Mississippi; thence by a line to be drawn along the middle of the said Mississippi river until it shall intersect the northernmost part of the 31st degree of north latitude. South, by a line to be drawn due east from the determination of the line last mentioned, in the latitude of 31° north of the equator, to the middle of the river Apalachicola or Catahouche; thence along the middle thereof to its junction with the Flint river; thence straight to the head of St. Mary's river, and thence down along the middle of St. Mary's river to the Atlantic Ocean, etc.

From this it will be noted that Nova Scotia then included the present New Brunswick; the two forming the old Acadia. It will also be noted that the Mississippi was supposed to rise as far north as a line due west from the northwest angle of Lake of the Woods. However, in the Treaty of 1794, between Great Britain and the United States of America, a clause was inserted enacting that a joint survey of the river should be made from "one degree of latitude below the Falls of St. Anthony to the principal source or sources of the said river," etc. Thus, in both these last-cited treaties, the Mississippi is supposed to be the western boundary of Canada. However, as the line is specifically and accurately laid down to the "northwestern angle of Lake of the Woods," that point was considered to be the western limit. As the lake is very irregular in shape, the commissioners, named in 1814, decided that "the northwestern point of the Lake of the Woods is that on which, if a line be drawn in the plane of a great circle, at an angle of 45° with the meridian, such a line would cut no other water of the lake." The point so found is in latitude 49° 23′ 55″ north, and in longitude 95° 14′ 38″ west from Greenwich. This is the meridian fixed by both the arbitrators, and by the Judicial Committee of the Privy Council of Great Britain and Ireland, as the western boundary of Ontario.

The contention that the western boundary of Ontario should be White Earth river, a tributary, in Montana, of the Missouri, is founded on the clause already quoted from the Treaty of Paris of 1783, "thence through the said lake [Lake of the Woods] to the most northwestern point thereof, and from thence on a due west course to the river Mississippi." It is claimed that, technically, the Mississippi includes the Missouri and its tributaries, and that the stream referred to is the first Mississippi waters crossed by that "due west" line. This contention, as well as the following, was advanced rather to illustrate that Ontario had good grounds for more extended claims than she was making. The "Rocky Mountain" claim finds support in the facts that the Canadians traversed and traded with the entire district to the Rockies long before the Hudson Bay Company's men reached Lake Winnipeg. As much of the evidence in support of this western boundary is applicable to Ontario's claim for extended northern bounds, it may be well to combine the two, and state the entire case both for the extreme western and the extreme northern boundaries. Ontario laid claim to all the territory that had formerly belonged to the French as Canada. By the "Constitutional Act" of 1791, the Parliament of Great Britain divided Quebec into Upper and Lower Canada. Upper Canada was defined as follows:

> To commence at a stone boundary on the north bank of Lake St. Francis (an expansion of the St. Lawrence), at the cove west of Pointe au Bodet, in the limit between the township of Lancaster and the Seigneurie of New Longueuil, running along the said limit in the direction of north 34 degrees west, to the westernmost angle of the said Seigneurie of New Longueuil; thence along the northwestern boundary of the Seigneurie of Vaudreuil running north 25 degrees east, until it strikes Ottawa river; to ascend the said river into Lake Temiscamingue, and from the head of the said lake by a line drawn due north until it strikes the boundary-line of Hudson Bay, including all the territory to the westward and southward of the said line to the utmost extent of the country commonly called or known by the name of Canada.

The official recognition given by the Imperial Parliament of Great Britain to the boundaries of Ontario in the "Quebec Act," 1774; the Constitutional Act, 1791; the treaty of Paris, 1783, and subsequent treaties, all show conclusively that Canada was understood to extend far north of Lake of the Woods, and as far west as the source of the Mississippi. The southern boundary of the company's territories is definitely stated to be north of Lake of the Woods. These and many hundreds of minor facts are the arguments advanced in support of the various claims. The settlement of the question has confirmed to Ontario a tract of 100,000 square miles more than her opponents wished her to get.

Algoma.—The territory awarded to Ontario forms part of the District of Algoma. This district, extending from the Georgian Bay (at the meridian of the most westerly mouth of the French river) to the northwestern angle of Lake of the Woods, is not specially adapted for farming. Its southern slope, toward Lakes Superior and Huron, is rocky. The Laurentian and Huronian plateaus extend along its entire length from east to west. But on these plateaus are occasionally found tracts of land well adapted for farming, and varying in size from 200 to 600 square miles. North of the Laurentian plateau, and sloping toward James Bay, are immense tracts well adapted for agriculture and grazing. But the intrinsic value of the territory is found in its gigantic forests and in its inexhaustible mining districts. For some years, very rich mines of silver and copper have been in operation on the north shores of Lakes Superior and Huron; while gold in paying quantities is found in the Lake of the Woods district. The capitalists forming the mining companies are almost wholly citizens of the United States, chiefly of New York, Boston, and Chicago.

The Canadian Pacific Railway traverses the entire length of the territory; and although it is but a few years since the first survey was made, there are already many thriving villages along the route. North of the plateau, toward James Bay, there is likelihood of a large population in the near future. Already railways are projected from various points in Ontario to James Bay, and it seems certain that at no distant date another outlet to Europe will be at the disposal of the farmers and merchants of Ontario, Manitoba, and the whole Northwest of Canada. This route, *via* Hudson Bay, presents few difficulties, and many advantages, that are not met with in the established lines of travel.

Veto-Power.—Another question, of great interest to the provinces of Canada, is the power possessed by the Government of Canada to disallow acts passed by the Legislative Assemblies of the provinces. By the British North America Act, 1867, the power of disallowing acts passed by the Provincial Legislatures was conferred on the Governor-General in Council, viz., on the Government or Ministry of the Federal Parliament. It is a power that has rarely been exercised, and it is a disputed question, at this stage in the history of the confederation, whether the Federal Government has, or is entitled to have, authority to veto or disallow acts passed by the provinces, concerning matters entirely within the jurisdiction of the provinces. At all events, the power of disallowing provincial acts has been sparingly exercised; for, of nearly 7,000 acts passed since 1867, only about thirty have been disallowed. Many of those disallowed have not been further contested or repassed; but one in particular, known as "The Streams Bill," was passed and repassed by the Legislature of Ontario, to be disallowed and again disallowed by the Executive of Canada, and to be again repassed by the Ontario Legislature.

The case giving rise to the contest was caused by, or arose out of, a former statute of Ontario, giving lumberers the right to run timber, saw-logs, etc., down "floatable" streams. A lumberer named McLaren owned limits on both sides of the Mississippi—a small river flowing northeasterly through part of Ontario, into Ottawa river. At a certain point on the river, in his limits, the rocks, bowlders, etc., in the river were obstructions to the floating of timber when the water was low; therefore, McLaren constructed a dam and slide to facilitate the passage of logs. Another lumberer, named Caldwell, owned timber limits on the banks of the same river, above McLaren's, and claimed the right granted him by the Ontario statute to float his logs through McLaren's slide. To prevent this seeming trespass, McLaren obtained an injunction from the Court of Chancery of Ontario, arguing that "floatable streams" are naturally floatable ones. To remove all ambiguity, the Legislature of Ontario, in 1881, re-enacted the law, and extended its provisions to all streams and constructions thereon; and provided for the payment by the party using the slide to the owner thereof, of a toll, which was to be fixed in each specific case by the Lieutenant-Governor of the Province in Council. The Governor-General in Council disallowed this act, giving in explanation "that the act seems to take away the use of the owner's property, and to give it to another, forcing the owner to become a toll-keeper against his will." The Ontario government objected to the Governor-General in Council assuming to review any provision of an act passed by a Provincial Legislature on a subject within its competency under the British North America Act, and again enacted the same law. It was again disallowed, and again enacted.

Meantime the case, Caldwell *vs.* McLaren, passed to the Supreme Court of Canada, where a decision adverse to Caldwell, and in favor of the Federal view of the question, was given. During 1884 it was brought before the Privy Council of Great Britain and Ireland, where a decision was given in favor of Caldwell's claim, and upholding the Ontario statute.

Escheats.—The confederation of the provinces was effected in 1867. Therefore, sufficient time has elapsed to produce disputes based on the act of confederation. Another point in the Constitution settled in favor of provincial rights was won by Ontario under its Attorney-General, the Hon. O. Mowat, viz., "Escheats in Real Property." The question, whether lands and personal property in any province escheated or forfeited, by reason of intestacy, without lawful heirs, next of kin, or other parties entitled to succeed, etc., came within the jurisdiction of the Provincial Legislatures or of the Dominion, came before the courts both of Ontario and of Quebec several years ago. It was, subsequent to the time referred to (1874 and 1876), agreed, between the Dominion and Provincial Governments, that, pending a judicial decision to the contrary, the above-named escheats should be subject to the jurisdiction of the provinces, while lands and personal property forfeited for treason, felony, etc., should be within Dominion authority and jurisdiction. Afterward, Ontario again passed an act (the one of 1874 had been disallowed) to assume possession of such lands, and empowered the Lieutenant-Governor in Council to make grants of escheated or forfeited lands, or to release forfeited property, or to waive forfeiture. Power was also given to make an assignment of personalty to which the Crown might be entitled. In 1878 this act was put to a test. A wealthy citizen of Toronto, Andrew Mercer, died intestate, without heirs or next of kin, and Attorney-General Mowat for Ontario laid claim to the property. A demurrer was entered by Andrew Mercer, Jr., a natural son of the deceased. It was asserted that Mercer had been legally married to the mother of the young Mercer, and a marriage entry was found in the register of a Roman Catholic church near Toronto, but the evidence was proved to be forged. The woman had been a servant in Mercer's house, but the son was well used by his father, and he had a valuable farm property deeded him prior to the old man's death. The Court of Chancery upheld the Ontario statute, and overruled the demurrer. The Court of Appeal for Ontario held the same view, and dismissed the appeal with costs. On appeal to the Supreme Court of Canada, it was decided between the Dominion and the Ontario Governments to make it a test case in the matter of escheats of real property. The Dominion upheld the views of the appellant, while Ontario remained firm in support of the statute.

The Supreme Court held that the escheat act of Ontario was *ultra vires*, and rendered judgment in favor of the appellant. Finally, on appeal to the Privy Council of Great Britain and Ireland, it was decided in favor of Ontario.

The Government of Ontario employed a portion of the large sum of money thus received in the erection of an elegant and substantial building, known as the "Mercer Reformatory," in Toronto. Its purpose is to serve as a place where abandoned women may be confined, instead of their being sent to the various prisons.

License.—The liquor license of Ontario authorizes the appointment by the Provincial Government of license commissioners for the municipality of every township, town, village, etc., in the province, and empowers them to pass resolutions as to the conditions and qualifications for tavern and shop licenses for retail sale of liquor, to limit licenses, and to regulate inspectors of licenses. The commissioners may also impose penalties. The sale of liquor was limited between the hour of 6 A. M. Monday, and 7 P. M. Saturday. Appeal against the act was made on the ground that the legislature could not delegate its powers to commissioners in municipalities. The Privy Council, in this as in all the former cases, sustained the Ontario statute, and decided that the British North America Act confers exclusive powers on the provinces as to the sections enumerated in section 92 of that act, and that in such matters, the provincial legislatures are supreme. Thus, the Province of Ontario, as the champion of provincial rights against Federal centralization, won, not only for herself, but also for her sister provinces, a series of legal victories.

Temperance.— The year 1884 witnessed in Canada an important agitation in temperance reform. The agitation has been directed to secure the passing, by counties and other municipal districts, of an act known colloquially as "The Scott Act," but officially as "The Canada Temperance Act." This act, passed in 1878, was amended last year, and was then found satisfactory to the temperance workers. It is to go into effect when adopted by a popular vote. The following is a synopsis:

Part I. One fourth of the electors in any city or county may petition the Governor-General in Council to have a vote taken upon the act in such city or county. The Governor-General in Council may then appoint a returning officer, fix a day for voting, and make all other needful arrangements for the polling of votes. The vote shall be taken by ballot, and in one day. Severe penalties are provided for corrupt practices in the election; and no treating is allowed, nor are any places where liquor is sold to be open during the whole day of voting. Electors, entitled to vote at an election of a member for the House of Commons, are entitled to vote on the Scott Act. If a majority of the votes polled are in favor of the act, a proclamation will be issued, bringing it into force; but in counties where licenses are in operation it can not come into force before at least five months after the voting, nor until all licenses in force at the end of these five months have expired. If no licenses are in force in a county, the act may be brought into operation after three months from the day of the vote adopting it. If the act be adopted, it can not be repealed for at least three years, nor until the repeal has been voted on and adopted by the electors. If the act be rejected, it can not be again voted on for three years.

Part II. From the day of the act's coming into force in any city or county, and as long as it remains in force, no intoxicating liquor shall be sold in any manner or under any pretext, except in the cases following: Persons who are specially licensed may sell liquor by wholesale, but only in quantities of not less than ten gallons, or, in case of ale or beer, eight gallons; and only to licensed druggists, or other wholesalers, or to persons who they have good reason to believe will carry it to and have it consumed in some place where the Scott Act is not in force. Producers of native wine, made from grapes grown by themselves, may, when licensed, sell such wine to any person in quantities of not less than ten gallons, unless it be for medicinal or sacramental purposes, when as small a quantity as one gallon may be sold. Licensed druggists may sell in quantities of not less than one pint. Not more than one druggist may be licensed in a township, not more than two in a town, and not more than one for every 4,000 inhabitants in a city. Druggists are allowed to sell liquor only for medicinal or sacramental use, or for use in some *bona fide* art, trade, or manufacture. Liquor can be sold for sacrament only on a certificate signed by a clergyman; for medicine, only on a certificate signed by a medical man; and for any other purpose, only on a certificate signed by two justices of the peace. The licensed druggist must file all these certificates, must keep a full record of all the sales he makes, and report the same to the Collector of Inland Revenue.

Part III. The penalties for illegal sale are: For the first offense, a fine of not less than fifty dollars; for the second offense, a fine of not less than one hundred dollars; and for the third and each subsequent offense, imprisonment for not more than two months. The clerk or agent who sells for another person shall be held guilty, as well as his employer, and shall be liable to the same punishment. All liquor, and all vessels containing liquor, in respect to which offenses have been committed, shall be forfeited. Any person may be a prosecutor for violation of the act. The Collector of Inland Revenue is required to prosecute when he has reason to believe that an offense has been committed. In evidence it is not necessary that a witness should be able to name the kind or price of liquor unlawfully sold; it is enough to show that unlawful disposal of intoxicating liquor took place. The finding, in any place, of liquor, and also of appliances for its sale, is *prima facie* evidence of unlawful keeping for sale, unless the contrary is proved. The husband or the wife of any person charged with an offense against the Scott Act is a competent and compellable witness. Any person attempting to tamper with a witness in any prosecution under the act shall be liable to a fine of fifty dollars. Any person who is a party to an attempt to compromise or to settle any offense against the act, with the view of saving the violator from prosecution or conviction, shall, on conviction, be imprisoned for not more than three months. No appeal shall be allowed against any conviction made by any judge, stipendiary or police magistrate, sheriff, recorder, or parish court commissioner.

The act has already been submitted in 59 counties, unions of counties, and cities, and has been defeated in only nine. In the 50 constituencies in which the act has been passed, the majorities sum up over 33,000 votes. The fight, in the constituencies not yet voted in, is being carried on very vigorously. Business men report a great improvement in trade, caused almost entirely by the fact that parties, formerly in the habit of running long-time accounts, or of not paying at all, now pay up pretty regularly. Open drinking and its consequent disturbance have very largely decreased wherever the act is in force.

Religious Union.—The year 1884 also saw carried into effect a union of the following religious bodies—i. e., "The Methodist Church of Canada," "The Methodist Episcopal Church in Canada," "The Primitive Methodist Church in Canada," and "The Bible Christian Church of Canada." The name of the united church is "The Methodist Church of Canada." The doctrinal basis of the Church is the standards of doctrine and articles of religion contained in the Book of Discipline of the Methodist Church of Canada, and also the general rules, ordinances, etc., of the said Church. The doctrines of the Church are those contained in the 25 articles of religion, and those taught by John Wesley, in his notes on the New Testament, and in the first 52 sermons of the first series of his discourses, published during his lifetime.

Canadian Pacific Railway. — This work was pushed forward with much vigor during the year. The only portions not yet completed between Montreal and Coal Harbor on the Pacific Ocean are a short section north of Lake Superior, and one in the Rocky Mountains in British Columbia. The former will be completed early in 1885, and the latter in the spring of 1886. The entire line from Montreal to the Pacific Ocean is over 2,900 miles, exclusive of the Ontario branch, or independent lines built or purchased by the Canadian Pacific Railway Company. During the session of

Parliament of 1884, the Government of Canada advanced $30,000,000 to the Canadian Pacific Railway, taking as security a mortgage on the main line from Callander (east of Lake Nipissing) westward. As the road for the first thousand miles passes through an unproductive country—the north shores of Lakes Huron and Superior—it is extremely doubtful if the security is of any value. However, the section from Lake of the Woods west to the mountains will always be a productive part. The Government of the day, that of the Conservatives under the Right Hon. Sir John A. Macdonald, was pledged to the early construction of the road. The railway company was unable to raise the money in the American or European markets on the bonds of the road, consequently it was a question of bankruptcy and failure for the company, and defeat for the Government, or the grant for the money by Parliament. After much lobbying, subsidizing local roads in various provinces as baits, and a great deal of manipulating in general, the leaders of the Government secured the grant. During the year the money was expended, and an effort was made to float another loan in the London market. Thus far this has failed, notwithstanding the fact that the Canadian Premier paid a visit to Europe in company with the president of the road, and advocated a scheme of imperial and colonial federation, the plan of which had been suggested by his opponent, Hon. E. Blake, many years before, in what is known in Canadian annals as "Blake's Aurora speech." The English capitalists were not convinced; but the construction of the remaining portions of the road is being pushed forward with increased vigor even in winter. The parts of the road already constructed, especially in the Northwest, are of much service to the country. The rates, too, are far from being as exorbitant as are charged by any of the Western roads of the United States. Besides, the company offers every facility it can to the settlers in importing stock, machinery, etc., and in exporting the produce of the soil.

Farming in the Northwest.—To test the suitability for settlement of the far-west country, traversed by the railway, "experimental farms" were started last year. The result has been that large tracts of land, selected at random here and there along the line, have yielded surprising returns. The Japanese current, and its attendant warm winds, temper the entire northern Pacific coast of America, so that at Sitka Island, in Alaska, the thermometer has fallen to zero (Fahr.) but four times in the past forty-three years. The Rocky Mountains in British Columbia are narrow, varying in width from 300 miles at the north, to about 500 at the south. The mountains in the United States are much wider. Then there are numerous passes, all less than 6,000 feet, and many as low as 2,600 feet in height, in the mountains in British Columbia. Through and over these passes the warm winds from the Pacific find their way, producing a climate very suitable for all kinds of farming, such as are conducted in Ontario Province or New York State. There are no passes south of the one traversed by the Northern Pacific Railway in the United States less than 8,000 feet in height. Another cause of the warmness of the Canadian Northwest is found in the fact that the warm currents of air, which in temperate regions, of course, pass easterly toward the poles from the equator, here ascend over the mountains. The air becoming rarefied, the heat is rendered latent, and on descending to the plains becomes evolved. It is another fact established by nature that in summer the days are very long in those regions, while they are correspondingly short in winter. The farmers resident in settlements as far north as the 60th parallel of latitude, toward the mountains, say they seldom or never fail to harvest good crops of wheat; and never miss any others, such as oats, barley, potatoes, turnips, cabbage, and peas.

Industrial Depression.—Industries of every class were much depressed during 1884 in Canada. This depression is, of course, general in other countries, but intensity has been given to it in Canada by the high protective duties, and by the extreme cheapness of farm and agricultural products in general. Crops of all descriptions yielded large returns per acre, and the prices were very low. Merchants have difficulty in collecting outstanding accounts, the carrying-trade is depressed, and business is very dull. The December or Christmas trade this year amounted to very little in any part of Canada. Where expensive cards, jackets, caps, and presents of every description were indulged in during former years, this year the cheaper gifts and toys were sought out as mementos. The sleighing, too, generally good throughout Canada toward Christmas—a fact which greatly enlivens business — was not good this year. The general stagnation in business was reflected in lumbering and mining operations, as well as in ship-building and fishing. In none of these was the trade of 1884 equal to that of some years immediately preceding. Owing to there being no insolvency laws now in force in Canada, it is difficult, if not impossible, to compare the failures in business with those of former years; but the number is very large, and much in excess of preceding years. The following is a summary of failures throughout the Dominion during the year:

PROVINCES.	Number of failures.	Liabilities.
Ontario	603	$9,602,392
Quebec	401	4,766,180
New Brunswick	78	1,570,337
Nova Scotia	140	2,068,860
Newfoundland	19	251,586
Prince Edward Island	7	146,000
Manitoba	79	786,001
Total	1,327	$19,191,306

Immigration.—Immigration to Canada fell off a great deal during 1884. The chief demand being for farm-laborers and domestic servants, those classes are more largely represented in the returns than any others. There are various private immigration organizations, whose chief aim is to find homes for destitute and orphan children. These bring out numbers of young boys and girls, and apprentice them to farmers for a term of years. As a rule, such children are not very moral, but many of them bid fair to become useful citizens. Another class of immigrants who have selected Canada as a resting-place came in great numbers during the year. The class includes bank managers, cashiers, treasurers of municipal corporations, directors of societies, etc., in the United States. Many of these gentry sought asylum in Canada, where the sporting community gave them a ready welcome. They are likely to be permanent settlers, as the extradition treaty with the United States does not cover their offenses.

British Columbia.—The progress of this province in 1884 was very marked. The export trade has doubled within a few years, and in 1884 amounted to over $5,000,000. This was chiefly in gold, coal, salmon, oils, timber, furs, etc. The export value per head in the province is more than triple that of any other province.

The western section of the Pacific Railway has trains running regularly inland for two hundred miles. Another railway, connecting Esquimalt and Nanaimo, on Vancouver Island, is under construction; while one through the central part of the province, running north from Yale, on the Canada Pacific Railway, is surveyed. The wages paid to men during the year were very high, and farmers obtained extraordinarily high prices for their products.

The Crown lands in the province are owned partly by the province and partly by the Dominion. The lands held by the Dominion are in the Fraser river valley and in the Peace river district, toward the northern portion of the province. They were granted by the province in aid of the Canadian Pacific Railway. The provincial lands are open for settlement, as are also those of the Dominion, under favorable circumstances. The farm and buildings of a settler, when registered, can not be taken for debt incurred after registration; it is free from seizure up to a value of $2,500. Goods and chattels are also free up to $500.

The mining laws are very strict. Certificates must be taken out by all miners; and "free miners" can have right or interest only in mining claims or ditches, and then only on payment of $5 annually. To record a claim requires a fee of $2.50, and it must be recorded three days after location, if within ten miles of the office. An additional day is allowed for each two miles of distance. Claims are to be rectangular. The sizes are: bar diggings, 100 feet wide at high-water mark, and thence extending into the river at its lowest ebb; dry diggings, 100 feet square; creek claims, 100 feet long, measured in the direction of the stream, and in width from base to base of the hill on each side, unless the hills are less than 100 feet apart, when the claim is 100 feet square; hill claims, 100 feet wide on the base-line fronting a stream, with parallel side-lines to the summit of the hill; mineral claims, precious or base (other than coal), in lodes or veins, or in firm rock, 1,500 feet long by 600 wide.

The fisheries of the province last year employed nearly 6,000 men and boys, and yielded an export value of nearly $2,000,000. Frozen salmon were shipped to Ontario and Quebec during the winter of 1884–'85, and it is intended to repeat the experiment another year.

There is a splendid public-school system in the province, and the school property is worth $100,000.

Every locality with over thirty regular male residents may become a municipality for self-government. This tends to assist the administrators of justice in preserving order among the miners, fishermen, etc.

Immigration was very brisk in the province in 1884. Over 5,000 entered at Victoria alone.

A magnificent cantilever bridge was completed over Fraser river, at Lytton. It is part of the Canadian Pacific Railway, and was constructed, as the residents of the Pacific slope boast, by engineers from that coast. The bridge is 530 feet long, the central span being 315 feet. The piers are of solid masonry, 96 feet high, and contain 6,480 cubic yards of stone. The bridge proper contains 6,000 tons of cast-steel and iron, and cost $280,000. The great engineering feat in connection with the construction of this bridge, as compared with the Niagara Falls cantilever bridge, is that the site was approachable from one side only. The material for the western end or half of the bridge was taken across on a steel cable. The first iron was placed on March 17, and on June 14 a train crossed the bridge.

The Chinese were very troublesome in some parts of the province during the year. They are there in settlements of hundreds, in all several thousand. There are urgent demands from the whites in the province for repressive measures against them. Partly to allay that excitement, the Federal Government sent commissioners to the province to report on the question.

Saskatchewan, Assiniboia, and Alberta.—Settlement was not so brisk during 1884 as was expected from the extraordinary rush in 1883. The past year has seen more ranching than grain farmers entering the Territories. However, the crops were beyond the expectations of even the sanguine farmers. On the whole, the report for Manitoba falls a few degrees below that of the Territories.

Some slight trouble was experienced with several Indian tribes, who insisted on changing their reservations. They claimed to be starving, although the regular supplies had been issued to them, and in some cases seized the Government stores. They were finally pacified and forced to return to the reservations without the firing of a single shot.

DRUGS, NEW. Antipyrine.—This is a new alkaloid, one of the chinoline derivatives, which has been extensively used during the past year as an antipyretic. It possesses the valuable property of reducing temperature without producing any unpleasant effects upon the system. The drug occurs in the form of prismatic crystals, which are quite soluble in water and alcohol. It is generally administered in divided doses up to one or two drachms. A single dose of fifteen grains causes a fall of temperature of at least three degrees (centigrade), which begins an hour after the administration of the drug, and continues four or five hours. After several doses have been given, the action of the drug may continue for forty-eight hours. As the temperature falls, the frequency of the pulse also diminishes, and there is a profuse perspiration. Antipyrine is recommended in all diseases attended with fever, especially in pneumonia, typhoid, acute rheumatism, erysipelas, and phthisis. The effects of the drug may be obtained more promptly if it is introduced into the system by hypodermic injection. It is not probable that this remedy will supplant quinine in the treatment of intermittent fever, although the two drugs are perfectly analogous in their mode of action. Antipyrine requires to be given in much larger doses than quinine, but it is much cheaper.

Hydrochlorate of Cocaine.—Cocaine is an alkaloid extracted from the leaves of *Erythroxylon coca*, a shrub that resembles the tea-plant, and grows wild in South America. The alkaloid occurs in the form of colorless, transparent prisms, without odor, and bitter. The peculiar virtues of coca as a nerve-stimulant have long been known, not only to the medical profession, but to the Peruvian natives, who are enabled to support prolonged fatigue by simply chewing the leaves. A young German physician has recently called attention to the fact (previously known to physiologists) that a soluble combination of cocaine with hydrochloric acid possesses remarkable properties as a local anæsthetic. Noticing that when a strong solution of cocaine hydrochlorate was applied to the tip of the tongue, that portion of the organ was temporarily benumbed, he was led to try its effects upon the eye. The result was the same. The practical application of this fact is, that if a few drops of the solution be introduced into the eye, the delicate nerves of sensation are paralyzed, so that the most painful operations may be performed without discomfort to the patient. The remedy has already been widely employed by ophthalmic surgeons, with brilliant results. Nor has its use been confined to the eye. When applied locally to the interior of the larynx, to the ear (in severe neuralgia), and to other delicate membranes, its effect is the same; pain and irritability are relieved, and the surgeon is enabled to accomplish his purpose without causing any suffering in cases where general anæsthesia is not desirable. The drug is quite safe, and its application simple. Four or five drops of a four-per-cent. solution are instilled into the eye at short intervals, twenty minutes before operation. The effect is experienced within five minutes after its introduction, and lasts for half an hour. The principal drawbacks to its frequent use are its expense, and the difficulty of obtaining pure preparations. Very recently the use of this drug has been greatly extended, so that now it has been employed not only to dull the sensibility of the nose and larnyx during examinations and operations, but it has even been employed as a local anæsthetic in abdominal surgery. From the evidence now before us, it seems as if cocaine were to be an efficient agent even in severe surgical operations, in cases where there are special contraindications to the use of chloroform and ether.

Jequirity.—This remedy, recently introduced into ophthalmic practice, has aroused an unusual amount of interest. The jequirity is a woody, twining plant, growing in Brazil, though it is also indigenous in India and Africa; the seeds, which occur in pods, are about the size of peas. An infusion of the seeds, when instilled into the eye, excites inflammation, apparently of a specific character. When this subsides, it is found that old inflammatory deposits on the cornea and conjunctiva have been absorbed. Marvelous results have been reported from the use of this drug in the case of patients whose vision, apparently permanently impaired, was perfectly restored. The active principle of jequirity is a micro-organism which is removed by boiling or filtering, the infusion then being deprived of its inflammatory action. Numerous experiments have demonstrated that the infusion may be used without danger to the delicate structure of the eye. It has also been employed with success in the treatment of purulent discharge from the ear. "The reception of jequirity by the medical world," says a recent writer on therapeutics, "is something unprecedented in the introduction of new drugs."

Kairine.—Kairine is another antipyretic, which has been highly praised, especially in the treatment of typhoid fever. It appears to be somewhat untrustworthy in its action, and its effects are brief. Contradictory statements are made as to its value as an antiperiodic; it is certainly much inferior to quinine.

Lemon-Juice as an Antipyretic.—This simple remedy has attracted much attention in countries in which malaria flourishes. It was introduced by an Italian physician, and was thoroughly tried by Prof. Tommasi-Crudeli, an authority on intermittent fever, who reported most favorably as to its efficacy. As lemons have been used for many years in fevers, without their antipyretic effects having been noticed, there must be some special virtue in the new mode of preparing the juice. The *modus operandi* is as follows: "A freshly-gathered and unpeeled lemon being taken, cut into thin slices, put into three teacupfuls of water, and boil down to one teacupful in a clean earthenware jar. This decoction is then allowed to stand overnight in the open air, and is given the first thing in the morning." Freshly-plucked lemons should be used, and one daily is generally enough. Under this homely treatment, not only is simple malaria curable, but pernicious intermittent fever may be effectually controlled. What the active principle of the lemon-juice is, is not known, but it is doubtless some undescribed alkaloid. The remedy has been tested too often, and by too eminent authorities, to allow of any doubt as to its efficacy.

Menthol (synonym, menthylic alcohol).—This is a white, crystalline substance deposited from oil of peppermint. It melts at 97° Fahr. It is prepared principally from the Japanese oil, by freezing and thawing this several times until no more menthol crystallizes out. The crystals are slightly soluble in water, more soluble in fixed and volatile oils and ether. The drug is considered a reliable remedy in the less severe neuralgic affections of the face, especially in brow-pains. A solution of one part of menthol to ten of alcohol is the strength usually employed. If the finger be dipped in this preparation and applied lightly to the seat of the pain, the relief is often almost immediate. The Germans have popularized the "Migräne-stift," or headache-pencil, which is simply a concentrated preparation of menthol in a solid form. This is rubbed over the affected nerve, and appears to dull its sensibility.

Naphthalin.—Several valuable derivatives of coal-tar exist, one of the most recent being naphthalin. This hydrocarbon is insoluble in water, but soluble in alcohol, ether, and the volatile oils. It is an active poison to all micro-organisms, but is innocuous to man, whether used internally or as an external application. It is employed in the treatment of inflammations of the alimentary tract, with or without ulceration. The allied derivative, naphthol, has assumed a good deal of importance as a remedy for the cure of certain affections of the skin, characterized by obstinate itching. As recommended by Prof. Kaposi, of Vienna, it is applied in the form of a weak ointment (one part of naphthol to ten parts of vaseline). He has treated thus the affection known as "prurigo" with brilliant results.

Quebracho.—From the bark of this tree six different alkaloids have been extracted, the most active of which are quebrachine and aspidospermine. Quebracho seems to act principally upon the nervous system. It diminishes the number of heart-beats as well as the respirations, and also renders the cardiac contractions more regular. It is especially valuable in dyspnœa of nervous origin, and hence is largely used in the treatment of asthma. Although the results obtained by the use of this drug are somewhat variable, its rapid action, freedom from bad effects, and almost specific properties in asthma, have made it deservedly popular.

Resorcin.—This is a resin belonging to the class of phenols. It occurs in the form of fine, colorless crystals, which are soluble in water and alcohol. It has a sweet, sickish taste, and in large doses may give rise to unpleasant or even alarming symptoms. It is a powerful disinfectant and deodorizer, and probably owes its virtues in certain diseases to its germicidal action upon the parasites that accompany or occasion these affections. Although it is by no means a new drug, it is only lately that it has been extensively used in practical therapeutics. As a local application it forms a valuable remedy in suppuration of the middle ear. It is given internally in malaria, and is said to be efficacious in some cases in which quinine fails. In the intestinal catarrh of infants it has proved to be of considerable value. A Brazilian physician has reported a large number of cases of whooping-cough in which the attacks were arrested and the disease shortened by the application of resorcin to the mucous membrane of the larynx through an atomizer.

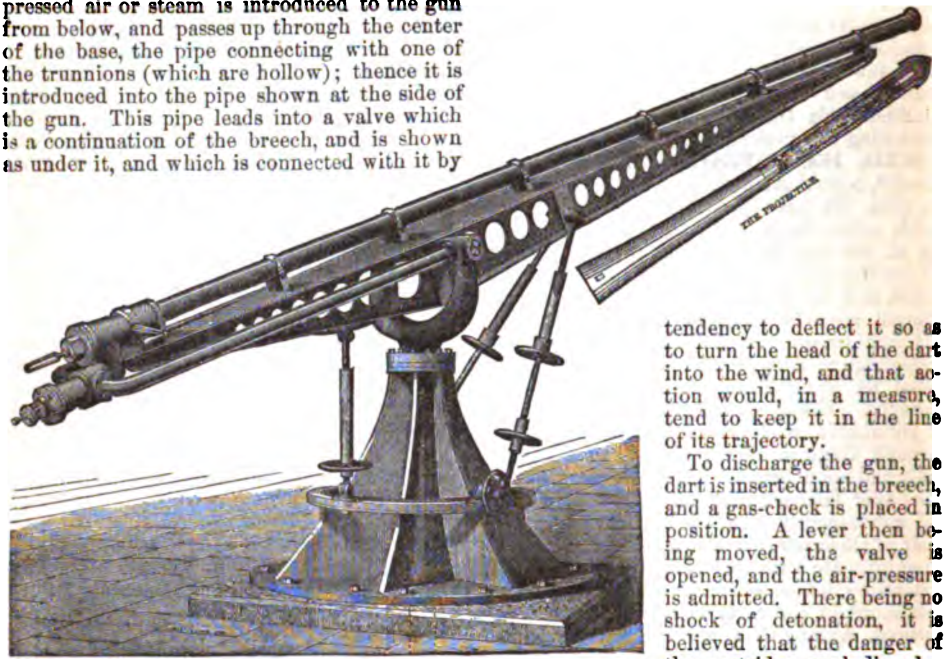
Stigmata Maidis.—This is the green silk of the ordinary Indian corn, from which an extract is made by macerating it without the use of heat. The true value of the drug lies in its power to increase the flow of urine, but it has also been shown to exert a regulating action over the heart. It is particularly indicated in cases of heart-disease accompanied by extensive dropsical effusions. Its effects are observed within a few hours after administration, and are manifested by an increased flow of urine, diminution of the dropsy, and a lowering of the pulse-tension. The heart's action becomes slower and more regular. The drug is entirely without unpleasant effects; it closely resembles convallaria in its effects, and is more rapid in its effects than digitalis.

Tanno-cannabine.—This is one of the many new alkaloids or preparations of alkaloids that have been lately discovered. It is a crystalline substance extracted from *Cannabis Indica* (Indian hemp). It is said to resemble strychnine in its physiological action. The active principle of the plant is an alkaloid known as cannabine. When tannin is added to the latter a new body is formed, which appears as colorless, crystalline needles, quite soluble in water and alcohol, and is known as tannate of cannabine, or tanno-cannabine. Valuable sedative and hypnotic properties have been claimed for the drug; in fact, it is said to act in a manner similar to opium, though it is free from the disagreeable after-effects (headache, nausea, etc., of the latter.) Frohmüller, who has used this new remedy in a large number of cases, is of the opinion that it possesses superior advantages as a sedative, not the least important being the fact that in its use there is no danger from poisoning, as in the case of opium.

Traumaticine.—This preparation is much in vogue in Vienna in the treatment of the common skin-disease, psoriasis ("tetter"). It consists of one part of gutta-percha dissolved in ten parts of chloroform. A semi-solid, sticky mass is formed, which is applied to the affected parts with a brush, and makes a thin, tenacious coating, which adheres to the skin for a few days and then scales off, leaving it smooth and somewhat discolored. Kaposi considers this the most effective means for combating this obstinate malady.

DUMAS, JEAN BAPTISTE ANDRÉ, a French chemist, born in Alais, July 14, 1800; died April 11, 1884. He was apprenticed to an apothecary in his native town, removed to Geneva, walking all the way, in 1816, and there continued his studies under the direction of Candolle, Pictet, and La Rive. His investigations with Prevost soon brought him into prominence. His first paper, "On a New Process for the Physiological Analysis of Blood," was published in the "Bibliothèque Universelle de Genève." His work attracted the attention of Humboldt, who visited him while passing through Geneva. He removed to Paris in 1823, and soon became the Répétiteur de Chimie under Thenard at the École Polytechnique, and subsequently succeeded Robiquet in the chair of Chemistry at the Athenæum. He became intimate with that galaxy of brilliant investigators whose scientific researches are so prominent in the early history of the natural sciences. Among these was the younger Brongniart and Victor Audouin, who, with Dumas, in 1824 founded the "Annales des Sciences Naturelles." In 1826 he married Mlle. Herminie Brongniart, daughter of the illustrious geologist and sister of his editorial colleague. During the same year he published a paper "On some Points of the Atomic Theory," which produced a powerful impression at the time, and has had lasting effects on the development of chemical philosophy. His attention was again directed to chemistry, and his life-work thenceforth was almost exclusively dedicated to this science. The establishment of the École Central des Arts et Manufactures, in 1829, was largely due to his energy and perseverance. The department of chemistry was under his supervision, and his lectures continued till 1852. He presided over the council of this celebrated school, with but one short interruption, from its inception. Gay-Lussac resigned the chair of Chemistry at the Sorbonne in 1832; the place was offered to Dumas, and his lectures continued till 1868. In 1835 Thenard withdrew from his chair at the École Polytechnique, and his duties fell upon Dumas, whose labors were again increased in 1839, when he became the occupant of the chair of Chemistry at the École de Médecine. His lectures at this latter institution were the cause of his celebrated controversy with Liebig in regard to the formation of fat in the human system. This discussion was ultimately decided in favor of Liebig. It is impossible to refer to the many memoirs published by Dumas. These appeared in the "Comptes Rendus" and other scientific periodicals, including the "Annales de Chimie et de Physique," of which journal he was editor for upward of forty years. Two of his works have become classical, the "Traité de Chimie Appliquée aux Arts," and the "Leçons de Philosophie Chimique." His parliamentary career began shortly after the Revolution of 1848. Under the presidency of Louis Napoleon, he filled the office of Minister of Agriculture and Commerce. During the second empire he was elevated to the rank of Senator. Such subjects as "Copper Coinage," "Laws of Drainage," "Preservation of the Mineral Springs of France," and "The Organization of Medicine," were those on which he addressed the Senate, and from which his reputation in political circles was made. Dumas served on many, if not all, of the scientific commissions called into existence by the Government. The reports on the claims of Le Blanc, the discoverer of the process by which sea-salt was converted into soda-ash, that of the Phylloxera Commission, and more recently that of the International Commission on Weights and Measures, were prepared by him. In 1868 he became one of the perpetual secretaries of the Academy of Sciences. He succeeded Guizot in the French Academy. In 1843 the Royal Society awarded him the Copley medal, and in 1869 he was the recipient of the Faraday medal given by the London Chemical Society. "Nature," in an extra number for Feb. 6, 1880, contains, from the pen of Prof. A. W. Hofmann, of Berlin, a most excellent sketch of his life.

DYNAMITE-GUN, THE. The value of dynamite and other high explosives in war would be much increased were a practical means in use for projecting bombs, or cartridges charged with such explosives, to considerable distances, as ordinary bombs are projected from mortars. The projectiles can not be fired with a charge of powder, for the shock of the detonation of the powder would certainly cause a premature explosion of the cartridge, with the destruction of the gun and great danger to the persons engaged in its manipulation. A plan has been devised by Mr. H. D. Winsor, of New York, and the persons associated with him, for applying the expansive force of compressed air or steam under high tension for the discharge of the dynamite projectile, and has been subjected, by order of the Government, to experimental tests under the direction of Lieutenant E. L. Zalinski. Guns in which the principle may be applied have been in making at the Delamater Iron-Works in New York. The four-inch gun is illustrated in the engraving. It consists of a tube forty feet long and a quarter of an inch thick, mounted upon a light steel girder. The latter is trunnioned, and is also pinioned on a cast-iron base, so that it may be swung into any desired position and range. The adjustment is further assisted and made stable by means of guys placed on either side of the base, the length of which can be altered and fixed by turning the hand-wheels. Compressed air or steam is introduced to the gun from below, and passes up through the center of the base, the pipe connecting with one of the trunnions (which are hollow); thence it is introduced into the pipe shown at the side of the gun. This pipe leads into a valve which is a continuation of the breech, and is shown as under it, and which is connected with it by the short passage that may also be perceived in the figure. The projectile or dart (see engraving) consists of two parts. The forward part is made of a thin brass tube, into which the charge of dynamite is inserted. In front of the charge is a mass of some soft material into which is fixed a pin firmly held in its place, and the end of the whole is closed by a conical metal cap. The charge is thus protected from premature explosion in front by the soft material, which acts as a kind of cushion against only moderate blows; but when the dart is thrown from the gun, the impact against a firm body will drive the pin home through the soft material with such force as to ignite the fulminate at its end and bring about the explosion which it is intended to produce there. Provision has also been made to allow a certain amount of air to act as a cushion for the dynamite cartridge, and thus contribute to lessen the shock of a sudden discharge. The cartridge-tube is closed at the rear by a wooden plug—the second part of the projectile—which flares out toward the rear till its diameter equals that of the bore of the gun. The construction of the projectile gives it the power to correct, to a certain extent, the deflection that would be occasioned by a side-wind. Its center of gravity, it will be observed, is some distance forward of its center of figure. A side-wind, therefore, acting most upon the lighter rear part, would have the tendency to deflect it so as to turn the head of the dart into the wind, and that action would, in a measure, tend to keep it in the line of its trajectory.



THE DYNAMITE-GUN.

To discharge the gun, the dart is inserted in the breech, and a gas-check is placed in position. A lever then being moved, the valve is opened, and the air-pressure is admitted. There being no shock of detonation, it is believed that the danger of the cartridge exploding before it leaves the gun will be reduced to a minimum. The application of the projecting force is further tempered through an automatic arrangement of the valve-controlling mechanism by means of which air is admitted gently at first, enough to overcome the inertia of the projectile, upon which full pressure is let on. The flow of air is stopped as the dart leaves the gun. For this gun are claimed the advantages of lightness, making it manageable on small craft; freedom from report and flash, making secrecy in its operation more feasible; and cheapness, for the cost of such a gun is but a trifle compared with that of other guns of equal power of destruction. Moreover, those guns require heavy special machinery and many months of labor to complete them, while dynamite-guns like the one described can be built in any well-equipped shop in a comparatively short time. In the experiments with a two-inch gun a range has been attained of one mile and a quarter under the application of a pressure of 420 pounds to the square inch. In the four- and six-inch guns it is intended to use pressures of 2,000 pounds and upward, and the gain of a considerably longer range is anticipated.

E

EASTER ISLAND, or Rapa Nui, famous for gigantic stone images, is in lat. 27° 8′ S., long. 109° 24′ W.; it is about 12 miles long and 4 miles broad, and resembles in outline a cocked hat. It is of volcanic origin; there are no sedimentary deposits. The island abounds in craters, which have been so long extinct that no tradition of their activity survives. The chief one of these, Te Rama Kao, is at the southwest end of the island; it is about a mile in diameter, 400 feet deep, and filled with water; in the center there is no bottom at 50 fathoms, but a carpet of decayed vegetation covers the surface, so firm that one can cross from side to side. The island is remarkably isolated. It lies about 2,000 miles from the South American coast, and 1,000 from Pitcairn Island and from the Gambier Islands. The soil, which is entirely composed of lava *detritus*, is moist and very fertile. A few days' work suffices to support a family for an entire year. Sugar-cane and the sweet-potato are indigenous, and with several kinds of yams and the paper-mulberry are cultivated; the latter, as elsewhere in Polynesia, for the purpose of manufacturing bark-cloth. Large trees formerly existed on the island, and in 1868 their stumps, with those of the cocoa-palm and the hibiscus among them, were seen decaying by Dr. Palmer; but nothing larger than bushes 10 or 12 feet high remained, though La Pérouse, eighty years before that time, had left fruit-trees with the inhabitants. The supply of fresh water is limited; it is found in deep pools, mainly in the volcanic craters. There is no harbor, but the roadstead affords anchorage. Near Te Rama Kao is a sulphur-spring. There are now no streams, though the eroded rocks in the gullies bear testimony to the former existence of water-courses. The coast-line is steep and irregular. The fauna of the island is meager; the flora includes a wild gourd, several new varieties of ferns, sedges, bog-plants, and a fine pasture-grass, on which sheep and cattle thrive.

Special interest attaches to Easter Island on account of the gigantic statues, terraces, and other remains of prehistoric culture that are found there. They were first noticed by Mendana in 1566, and later by La Pérouse, Roggeween, and Cook, but have not been fully and adequately described until very recent years, particularly by Palmer (1868), and Geiseler (1883). The prehistoric remains are of three kinds: terraces or platforms, which were used as cemeteries; stone houses; sculptured stones, or colossal human images, and pillars used as cremation-stones, besides wooden idols and various images of later origin. The terraces are built on nearly every headland, and not far from the sea; as they occupy sloping ground, the sea-front is always the higher. Dr. Palmer describes as follows an especially perfect terrace, which he calls the Fifteen-Image Platform: "Seaward, just where the ground becomes broken as it nears the cliffs, is built a very stout wall. Its height is much obscured by fallen rubbish, broken images that have toppled over, rank vegetable growth, etc.; but it seems to have been about seven or eight yards high. The stones of which it is made are large and irregular, both in size and shape, though more or less four-sided. Some are fully six feet in length. They are fitted together very exactly, without any cement. This wall is built flat and level at the top, about 30 feet broad by 100 paces long, squared at each end, and parallel to the shore in its long direction. This constituted the platform on which were the slabs that served as pedestals for the images. Landward it seemed to be not much more than a yard high. Before it was a smooth space or terrace of the same length as the platform, but at least four times as broad, and this terminated in front by a low façade or step of stone, about as high as that of the platform. seemed to be from the same point of view. The terrace sloped gently to this step, and the sides were built square and raised above the adjoining ground, so as to join the ends of the platform. The image platform was strewed with bones in all directions. They were old and weather-worn, but bore no marks of fire. The images had been thrown down in all directions, and were all more or less mutilated." Similar images and platforms have been described by the Rev. Titus Coan as existing at Puamau in the Marquesas Islands, in 1860; and similar platforms were seen and figured by Lieut. Malden, in 1825, on the uninhabited Malden's Island ("Voyage of H. M. S. Blonde," 1826).

At the southwest side of Easter Island, at the sea-edge of the Te Rama Kao crater, says Dr. Palmer, are eighty or more houses of great age, now unused, and mostly in good preservation. They are built in irregular lines as the ground permits, their doors facing the sea. Each house is oblong-oval, built of layers of irregular flat pieces of stone, the walls about 5½ feet high. The doors are in the side, as in the present grass huts. The walls are very thick, 5 feet at least, and are lined with upright slabs 4 feet high, but not so broad. Above these, small thin slabs are ranged like tiles, overlapping, and so gradually arching till the roof-opening is bridged over by long, thin slabs, 5½ or 5 feet, which are not more than 6 inches thick and 2 feet in width. The inner dimensions of the hall are about 16 paces long by 5 paces wide, and the roof is 6½ feet high inside, under the center slabs. The passage leading to it is paved with slabs, under which is a kind of crypt, or blind drain, which extends about 6 feet outside; here also it is covered with flat slabs, and is of the same dimensions as the passage. It is carefully built of stone, squared and dressed; it ends abruptly and squarely. Outside the hall, and at right angles to it, are smaller chambers that do not communicate with it, each of which has a separate door from the outside. The upright slabs that lined the hall, and those of the roof, are painted in red, black, and white, with all kinds of devices and figures; some like the geometric figures of the Mexicans, some birds, *rapas*, faces, *eronié* (a curious mythic animal, like a monkey with a bird's head), and *m'hanus*, or double-headed penguins. Symbolic figures of phallic nature, rude tracings of horses, sheep, and ships with rigging were found in a few. These were very new, and misled some to the idea that all were equally new.

The sculptured stones are on the brink of the sea-cliffs at the Te Rama Kao, at the place where the last lava-flow issued, and overlook the sea, which is directly under them. They are very numerous, even to hundreds; they are almost always on platforms (but all have been thrown down), except in the crater at Otuiti and outside of it, where they are at the east only, and in groups, not in rows, and here even very many are prostrate. The vervain-bushes and grass much obscure them. They are made of but one material, a gray, compact, trachytic lava, found at Otuiti, where there is a distinct slide evidently built for their removal, and where imperfect images are still to be found. They are human trunks, terminating at the hips—the arms close to the side, the hands sculptured in very low relief on the haunches. They are flatter than the natural body. The largest measured was 37 feet high. The usual size is 15 or 18; the small ones are 5 or 4½ high. These are more boulder-shaped. The head is very flat; the top of the forehead is cut off level so as to allow a crown to be put on. This was not done till the image was on its pedestal on the platform. In the giant images at Otuiti, outside the crater, the head seems to project before the line of the trunk, which was not noticed in the others. The face and neck of these measure full 20 feet to the collar-bone. They are in the best preservation. Those inside the crater are large, but weather-worn, apparently the oldest in the island; many are prostrate. They differ a little in profile from those in the other parts of the island; the face is square, massive, and sternly disdainful in expression; the aspect always upward. The peculiar feature is the extreme shortness of the upper lip, or the up-thrust of the lower one. The eye-sockets are deep, close under the brows, and, as far as Dr. Palmer could make out, eyeballs of obsidian were inserted in them; but he was not fortunate enough to find any. The nose is broad, the nostrils expanded, the profile varying somewhat in different images. The ears are always sculptured with very long, pendent lobes. The beautifully perfect statue now in the British Museum is elaborately traced over the back and head with *rapas* and birds, two of which much resemble the apteryx. It was colored red and white when found, but the pigment was washed off in its transit. Its height is 8 feet, its weight 4 tons. It was buried waist-deep in the ground, and had no crown. Its face, like those of the rest, was turned from the sea. It was the only one under cover; the house in which it was found was a small circular one 20 feet across, into which two small, dark chambers opened. The crowns were always made of the same red vesicular tufa found in the Te Rama Kao, upon the outside slope of which as many as thirty were waiting for removal to their several platforms. The largest measured was 10½ feet in diameter, but they varied much in size, at Anakena to only 2 feet across. In shape they were short, truncated cones, or nearly cylindrical. Some of the very large images have such small tops to the head that it would seem difficult to fit them with a crown.

The implement used for carving these statues was a long boulder-pebble from the shore, like a rolling-pin or huge incisor. The chisel-edge was produced by chipping it, and rubbing it down afterward with obsidian. On many of the statues little projections were left; these were portions harder than the chisels.

Cremation stones and pillars were also found, having apparently served the purpose of altars; one pillar at least occurred for each platform, and human bones and skulls were found, apparently those of victims. Modern wooden gods were numerous when Father Eugène and the French missionaries took up their residence on the island in 1863–'65. They were generally male figures, about a foot in length, made of solid, dark wood; the profile, differing much from that of the colossal images, was strongly aquiline. These figures are well carved. The female figures are flatter, larger, and ruder in execution. Besides these idols there are figures representing lizards, sharks, fowls, and nondescript animals. The natives still carve these *lares*, but do not worship them, and appear to have lost all knowledge of their ancient religion and its symbolisms, as well as of their early history, though, as at the Hawaian, Samoan, and other Polynesian groups, various traditions of emigration from the West remain.

The native inhabitants are the easternmost tribe of the pure brown Polynesian race, which in the area of its ocean habitat is the most widely diffused of any aboriginal race of men. They speak a language almost identical with that which is spoken in New Zealand, Samoa, the Lagoon Islands, and Hawaii, five thousand miles distant to the west and north. Captain Cook, on his second voyage (1774), remarked of them that "in color, features, and language, they bear such an affinity to the people of the more western isles that there can be no doubt of their having been descended from one common original. ·It is indeed extraordinary that the same nation should have spread themselves to so wide an extent as to take in almost a fourth part of the circumference of the globe." The natives are of amiable and hospitable but fickle disposition. Theft is common, as it was in Cook's time. They at first opposed the missionaries, but finally became resigned to their presence, and embraced Christianity (1868–'65). On the departure of the missionaries they forgot their teachings, and no trace of the missionaries' work now remains; the people are absolutely without religion of any kind. Their numbers, once ample, have been reduced by the agencies of civilization to 67 men, 39 women, and 44 children, 150 in all; with the prospect, as in the case of all other Polynesian tribes, of early extinction. Some years ago 500 were deported to Tahiti as laborers. The missionaries took away 300 of them on leaving in 1865. They sold the mission property to a firm, the Maison Brander, which has devoted the greater part of the island to pasturage, owning, in 1888, 10,000 sheep, that yielded 18 tons of wool a year, and 400 cattle. The natives raise poultry, which thrives remarkably well. This remnant of people still choose a chief of their own number by trials of strength and courage, which now, as in their more fortunate times, they recognize as the only substantial proof of superiority.

The origin of the extraordinary remains on Easter Island must be ascribed to an epoch prior to that of its occupancy by the Polynesian race, the immigration and dispersion of which among the Pacific islands took place "certainly not later than the first century of the present era" (A. Fornander, in "The Polynesian Race"), and possibly much earlier than this. Evidence is lacking to show that any architectural or sculptural works of the kind described have been made by any Polynesian people, though such works remain in several parts of Polynesia. Their objects were apparently religious and monumental; but it is probable that further researches, like those of Adolf Bastian ("Die heilige Sage der Polynesier" and other important monographs), will throw more light upon the origin of these monuments of a prehistoric civilization.

EASTERN CHURCHES. I. The Russian Orthodox Church.—The Russian Orthodox Greek Church includes fifty-nine dioceses, which are administered by sixty-one episcopal officers, of whom three are metropolitans, seventeen archbishops, and the rest bishops and assistant bishops or vicars. The white or secular clergy number 111,000. The church-buildings consist of 636 cathedrals, 41,047 churches, and 13,877 chapels and houses of prayer. The monastic establishments comprise 385 male convents, housing 10,113 monks, and 167 female convents, maintaining 18,830 nuns. The convents and churches together support 94 hospitals, while the convents support 51, and the churches 619 homes for invalids and aged persons. The educational institutions include four theological academies, with 950 students; 53 seminaries, with 14,800 students; 185 schools, with 28,288 pupils; 4,401 parochial schools, with 104,781 pupils; and 11 schools for daughters of clergymen, with 1,003 pupils. Libraries, of which 172 were founded in 1883, are provided in connection with 16,434 churches. About a million rubles were spent during 1883 upon buildings for religious, charitable, and educational purposes, and the Holy Synod had under control more than 80,000,000 rubles, which had been raised for various educational, publishing, and benevolent objects. The gifts of all the convents and churches for the year amounted to about 12,000,000 rubles. This money was spent in the ornamentation of churches and convents, the maintenance of the Holy Sepulchre, the propagation of Christianity among the pagans, the support of Orthodox people in Palestine, and assistance to Orthodox clergymen in the Caucasus and in Poland. The entire budget of the Russian Church for 1883 amounted to 18,800,931 rubles, of which sum the Holy Synod spent of its own means more than 6,000,000, while the rest was supplied from the imperial treasury. In the matter of assistance to sister churches in the East, the Church in 1883 paid to the Patriarch of Constantinople about 20,000 rubles, to the Patriarchs of Jerusalem and Alexandria 1,270 rubles each, and to the Patriarch of Antioch 1,500 rubles. Many Orthodox churches and convents in outlying countries have been provided by the Holy Synod with sacred paraphernalia and money, and several theological schools are supported by Russia in some of those countries. More than 500,000 rubles have been contributed for building an Orthodox cathedral in the Schipka Pass of the Balkan Mountains. The Russian Missionary Society is supported by more than 7,000 members, has branches in about thirty dioceses, returned a capital in 1883 of 722,057 rubles, and an expenditure for the year of 164,000 rubles, and enrolled 1,252 Japanese converts to Christianity. The Russian Missionary Society and the Russian Orthodox Brotherhoods together returned in 1883 10,812 converts to the Orthodox faith, of whom 4,796 were from paganism, 3,295 from the Raskolnik sect, 1,027 from Roman Catholicism, 700 from Protestantism, 572 from Judaism, 410 from Mohammedanism, and 11 from the Armenian church. The Orthodox Brotherhood consists of more than thirty societies, established for moral, religious, and educational purposes, one of which is the translation of the Bible and religious books into languages of the non-Russian tribes of the empire.

II. The Œcumenical Patriarchate.—The relations between the Greek Church as represented in the Œcumenical Patriarchate of Constantinople and the Porte were disturbed during much of the year by questions growing out of the proposed application in the empire of a scheme of judicial reorganization and reforms the operation of which would be to curtail some of the established rights of the Church. From the foundation of the Ottoman Empire the Greek Patriarch had enjoyed the right, subject to the Sultan's acknowledged power of nominating and deposing him, to exercise an exclusive ecclesiastical authority over the members of his own communion. The proposed reforms provided for changes, which, as the Patriarch showed in a remonstrance he addressed to the Porte on the subject, were not only inconsistent with the *status quo* as it had always existed, but would impair the ecclesiastical independence hitherto guaranteed to the Orthodox Greek Church. Besides a general argument on the subject, the Patriarch, Joachim III, specified six points in support of this view of the question: First, he showed that, under the provisions of the scheme, civil actions, in which metropolitans, archbishops, and bishops were concerned, which were formerly required to be conducted in Constantinople alone, would henceforth be submitted to the local authority of the cadi, and criminal actions in like cases would be withdrawn from the jurisdiction of the ecclesiastical authority, which had hitherto been paramount, and submitted to that of the civil functionaries of the Ottoman Government. A second ground of complaint was that, whereas the Porte affected to recognize the authority and jurisdiction of the heads of the Orthodox Church in ecclesiastical cases, it practically declined to lend the authority of the civil power to the execution of their decisions. The ecclesiastical law was thus denuded of its civil sanction, and was by consequence made of no practical effect. The third point was that, in matrimonial cases and questions of divorce and judicial separation and the regulation of the amount which the husband should pay for the wife's maintenance, the jurisdiction of the Church, which had been exclusive, was made subject to the right of appeal to the civil courts. The subordination in a similar manner of the ecclesiastical to the civil authority in cases of testamentary disposition was made the basis of the fourth point of the Patriarch's protest. The two remaining grounds of complaint were concerning the building of churches and the regulation of schools, in both of which cases it was alleged that the Porte had deliberately neglected the obligations formerly recognized by it, and that the necessary authority for the construction of new churches and schools was now frequently withheld for frivolous and vexatious reasons, and often for no reason at all. At a meeting of the Holy Synod and General Assembly of the Orthodox Greek Community, held Dec. 21, 1883, the Patriarch, after the subject of the difficulties had been discussed, announced that he felt bound at once to resign his post, since it was impossible to carry out his duties any longer in such circumstances. The Synod asked him to reconsider his determination, but he declared that his official position had become untenable, and he could not countenance any show of wavering or weakness on such a question. The communication of the Patriarch's resignation to the Porte was accompanied by a petition of the Synod and Assembly that it be not accepted, and that the Government would take into consideration the difficulties which the contemplated changes in the position of the Greek Orthodox population would produce. The attitude of the Patriarch and the representations of the Synod and Assembly induced the Porte to reflect upon the steps it was contemplating, and to consider the expediency of modifying its proposed scheme in favor of the ancient privileges of the Church. It shortly proposed a "compromise" measure, under which it was provided that a priest might be arrested by the ordinary authorities and imprisoned, but that notice of his arrest must be given to his ecclesiastical superior, and the accused must be confined in a special apartment, separated from that of ordinary prisoners; with regard to the other points, the former *status quo* would be respected, and the recent circulars modifying the old order of things would be countermanded. The Synod and Mixed Council, on the invitation of the Minister of Justice, in May, appointed delegates to treat with his Excellency concerning the questions at issue. The negotiations were conducted with apparent promise of an amicable adjustment, but, without waiting for them to be concluded, the Porte sent a communication to the patriarchate in which it disclaimed all intention of modifying the rights and privileges enjoyed *ab antiquo* by the Church; and, without promising to allow the definitive criminal procedure with regard to parish priests which the patriarchate desired, requested the Electoral Council to choose at once, in accordance with ancient usage, four candidates for the vacant patriarchal throne. At the meeting of the Electoral Council, October 4, some members were of the opinion that the election should be postponed until the criminal procedure with regard to the parish priests should be expressly defined according to the Greek view of the question, but others considered that there was no reasonable probability of obtaining any further concessions from the Turkish Government, and that, consequently, the election should take place without further delay. The latter opinion prevailed. The council named as its candidates for the office of Patriarch, the Archbishop of Smyrna, the Archbishop of Nicomedia, the Archbishop of Derkos, and the resigned ex-Patriarch, Joachim; the definite choice to be made afterward from among the names approved by the Porte as acceptable to it. The candidacy of the ex-Patriarch exciting opposition among some of the members of the Synod, he withdrew from the contest. The definitive election resulted in the choice of the Archbishop of Derkos. The selection was approved by the Porte. The newly elected Patriarch was granted an audience with the Sultan on the 20th of October, and received the grand cordon of the Medjidie order. On the same day, accompanied by the clerical dignitaries, he paid a visit to the Porte, and was afterward formally installed into his office. A monthly pension of £70 was accorded to the ex-Patriarch Joachim.

The election of the Archbishop of Derkos was regarded as favorable to the establishment of more harmonious relations between the Greek and Roman Catholic churches. The new Patriarch had visited Rome during 1883, and had had a conference with the Pope on the points of difference between the two churches. On this aspect of the question, a correspondent of the Roman Catholic journal "Germania" has written:

> The new Patriarch is the most celebrated and distinguished representative of the so-called "lay party" in the East, which is penetrated with the conviction that union with Rome is the only means of waking the Oriental Church from her torpor to new life. His nomination has, therefore, a special significance. It proves that the official leaders of the community are not hostile to an eventual reunion. Not only in Rome, but also in the Greek Church, it has made a deep impression. It is well known that for a considerable time a bitter warfare has been going on between the Russian Schismatic Church and the Greeks, in order to gain the upper hand in the religious affairs of the East. The Hellenistic party is very active, and has representatives in Athens, Constantinople, Palestine (especially Jerusalem), Syria, and some districts of South Russia. The efforts of its followers are directed chiefly to shake off the Turkish yoke, and at the same time to bar and combat the ever-growing influence of Slavism. The most gifted minds of this party have already begun to see that, in their isolation, they can with great difficulty make stand against the encroachment of Russian policy. Many of them have begun to give expression to the idea, in newspapers and reviews, that reunion with Rome will have as its consequence the refreshing and revival of the stagnating Church. Parallel with these two currents is the religious movement in the Balkan Peninsula—a movement which took its rise in consequence of the Encyclical of the Pope on SS. Cyril and Methodius, and which is powerfully supported by Bishop Strossmayer, who, with particular reference to the specifically Oriental character, is busy with positive preparation for a union of the Slav and Roman Churches.

The election of a patriarch disposed for an understanding with Rome was regarded by this writer as a favorable prognostic of ultimate success in effecting a reunion. These hopes received a partial color of encouragement from the exchange of courtesies and official visits which took place in the latter part of November between the Apostolic Legate and the Œcumenical Patriarch.

III. The Coptic Church.—Recent visitors to Egypt, particularly Mackenzie Wallace and Villiers Stuart, have published some facts concerning the present condition of the Coptic Church and the Coptic people. Except for a sharper definition of its position on the Monophysite doctrine, the faith of the Church has not changed since the separation achieved at the Council of Chalcedon, A. D. 451. It has its own peculiar ritual, and exacts a rigorous observance of the fasts. Of the two branches claiming to be the Coptic Church, the Jacobites have a patriarch, who asserts supremacy over the Abyssinian Church, and in whose election the Patriarch of Abyssinia has a voice, with twelve episcopal sees. The Roman Catholic Copts, who have built up several communities in Upper Egypt since the end of the seventeenth century, use a liturgy not differing much from that of the Jacobites, except that in the "commemoration of the faithful departed" they make mention of "the six hundred and thirty who were gathered together at Chalcedon." A curious custom prevails among the Copts of distributing to the poor, on Whitsunday, doles of meat and fruit on behalf of their deceased friends. According to Villiers Stuart, the Coptic people are all educated, and constitute the most industrious and intelligent class of the community. They number about 250,000 in Upper Egypt, where they form one fourth of the population in some towns; and about 50,000 in the Delta. Their churches, in style and decoration, somewhat resemble those of the Russians, and they are, in fact, in communion with the Greek Church at Osiout. Mackenzie Wallace represents them as constituting the wealthier part of the population, and as being preferred, on account of their readiness at writing and calculation, for clerkships and secretaryships under the Government. They have a costly and florid cathedral in Cairo. Provision is made for schools at which a considerable number of boys are taught reading, writing, and arithmetic; but for girls there is only a single school in Cairo, where are taught reading, writing, arithmetic, Arabic hymns, and Holy Scripture. A "Young Coptic" party of considerable force has lately arisen, which is seeking to improve the standard of education, and to promote the cultivation of a better acquaintance with the ancestral faith and the grounds on which it rests. Under its instigation the priests of the old churches have begun to collect the books that were gradually perishing in their closets, in order to place them in a public library to be established at the Patriarch's residence. An extension has been given to the powers of the council. The subject of school reform has been under consideration.

The question of ways in which it may be possible to approach the Coptic Church has been under consideration among members of the Church of England. At a meeting held in February, 1883, a committee was appointed to consider what steps should be taken "to revive and extend true religion in Egypt." The subject was also discussed in the Convocation of Canterbury, and was found to be involved in difficulties. In whatever way the effort might be made, the proceeding appeared to be embarrassing. If it were proposed to plant a branch of the Church of England among the Coptic people, that would add one more to the many divisions of the East; if to help the Coptic Church and manifest friendly relations with it, that might make trouble with the Orthodox (or Greek) Church; if to help the Orthodox Church, that might bar friendly access to the Coptic Church; if to carry on a mission, that would be to treat the land of the Copts as a heathen country; if to preach the gospel, that might be regarded as implying that no gospel was preached there at present. But the friends of the movement for establishing intercourse consider themselves as pledged to do something toward carrying out that object.

IV. **The Armenian Church.**—The delegates of the Armenian Church met at Etchmiadzin, in May, to complete their functions in the election of a new Catholicos, or Metropolitan Bishop. When Armenia was an independent nation, the election of the Catholicos was conducted by the representatives of its own bishoprics assembled in conclave; but since the nation has been subjected to foreign powers, and particularly since its territory and people have been divided between Russia and Turkey, this method of election has been impracticable. On the present occasion, the Armenians of Turkey, constituting the majority of the nation, chose Monsignor Nerses, the actual Patriarch of Constantinople, by the highest number of votes; while next to him in the list of persons voted for, stood Monsignor Melchizedek, Bishop of Smyrna, and the ex-Patriarch, Monsignor Khrimian, the bishop who had visited England in 1878, to represent the cause of the Armenians to the British Government. The final election having to be held, however, at Etchmiadzin, delegates were appointed at this conclave to represent the Turkish Armenians there. At this point, the Russian Government interposed an objection to acknowledging the delegates thus chosen, and, declaring that they would be regarded as representing only the See of Constantinople, insisted that the election of the Catholicos should be conducted in accordance with the laws known as the Balageria. These laws require that the names of two or more candidates who have obtained the largest number of votes shall be submitted to the Emperor, and that he shall decide which one among them shall be the Catholicos. This stipulation has always been objected to by the Armenians, as contrary to the canons of their Church and as detrimental to their time-honored right of free and untrammeled election. The conclave at Etchmiadzin concurred with the Turkish bishops in the choice of Monsignor Nerses as the first candidate, and sent up, as alternative candidates for the approval of the Russian Emperor, the names of Monsignors Melchizedek and Khrimian. Although the choice of Monsignor Nerses was approved by the Emperor, he declined to accept the office of Catholicos under the conditions imposed by the Russian statutes, because they were regarded as derogatory to the ancient privileges of the Church. On the 7th of November, Monsignor Nerses died, in the forty-eighth year of his age, after a life distinguished by services to the Armenian people and Church. He was born in Hasskuei, a suburb of Constantinople, and was educated by the priest Der Kivork to be a teacher at Adrianople, and afterward a *vartabed*, or preacher. As his first public mission, he was dispatched to Zeitûn, to defend the Armenians there who had been in rebellion. Having been ordained a bishop before returning from Zeitûn, he was immediately sent on a mission to Russia, and afterward to Egypt, where he succeeded in interesting the Armenian minister, Nubar Pasha, in behalf of the education of his people in Constantinople, and returned with the means to found a superior school for Armenians at Hasskuei. Unfortunately, the endowment funds of this school were invested in Turkish bonds, and were lost by the bankruptcy of the Government. He was afterward made Bishop of Nicomedia, and finally Patriarch of Constantinople, when only thirty-six years old. He was consulted during the negotiations which attended and followed the conclusion of the Russo-Turkish War, and secured the insertion in the Treaties of San Stefano and Berlin of articles binding the Turkish Government to establish a just government in Armenia, which should give full and equal rights to the Christians.

The elections for a new Catholicos were not to take place for three or four months after the death of Monsignor Nerses. The Turkish candidates for the office were understood to be Archbishop Coren de Lusignan and Monsignor Melchizedek.

ECUADOR, a republic of South America. The area is about 206,200 square miles; the population is estimated at 946,000, exclusive of the aborigines inhabiting the eastern provinces and eastern slopes of the Andes. The population is distributed over the eleven provinces as follows: Pichincha, 120,280; Guayas, 94,442; Manabi, 67,852; Esmeraldas, 10,000; Los Rios, 60,065; Chimborazo, 128,310; Tunguragua, 70,143; Leon, 101,282; Imbabura, 93,659; Azuay, 100,000; and Loja, 100,000. The number of wild Indians is estimated at half a million. Six new provinces have recently been organized, viz., Oro, Almedo, Carchi, Bolívar, Azoguez, and Oriente. The Galápagos Islands, 1,910 square miles, belong to Ecuador, but have only 60 inhabitants. The capital is Quito, population 80,000. Guayaquil, the principal port, has 40,000; Cuenca, 30,000; and Loja, 10,000.

Government.—The President is Don José María Plácido Caamaño, inaugurated at Quito, Nov. 22, 1883, having been elected on October 23 for the term of four years. The Vice-President is Gen. A. Guerrero. The Cabinet is as follows: Interior and Foreign Affairs, M. Espinosa; Finance and Public Works, V. L. Salazar; War and Navy, Gen. J. M. Sarasti. The Governor of Guayaquil is Gen. J. A. Gomez. The Archbishop at Quito is J. J. Ordoñez.

The Minister of Ecuador at Washington is Don Antonio Flores, who has twice before represented his country at the American capital. The American Consul at Guayaquil is

Mr. H. Beach, and the Ecuadorian Consul at New York Mr. H. Kiesewetter.

Army and Navy.—The regular army does not exceed 5,000 men, and the navy has but two steamers.

Events of 1884.—By the earthquake that took place in Guayaquil on March 25, two of the churches suffered severely; the walls of one of them were badly cracked. Two months previously Cotopaxi had given signs of activity. At noon, on Dec. 13, 1883, ashes began to fall from the crater of the volcano, and by eight o'clock in the evening the shower of ashes was heavy enough to cover people's clothes at Quito like snow-flakes. On the morning of the preceding day a peculiar purple color of the sky toward the south of the capital extended along the horizon 90°, reaching upward about 45°.

Early in the year the Constituent Assembly embodied the following fundamental law in the new Constitution: "The religion of the republic shall be the Catholic Apostolic Roman, to the exclusion of every other. The political powers of the country must cause it to be respected, and protect its rights and liberty."

When, early in December, 1884, the British steamer northward bound approached Ecuadorian ports, it was signaled from shore that communication with any of them was prohibited. President Caamaño was at Guayaquil, and it was then believed that he had no intention of attempting to regain authority in the northern coast towns, where the friends of Gen. Eloy Alfaro were in full possession. Trouble had been brewing since Dec. 24, 1883, the cause being a bitter discussion in the National Convention on the previous day over some feature of the Church question, when Don Timoleon Flores, brother of the Ecuadorian minister at Washington, shot Julio Roman through the arm with a revolver.

On Dec. 16, 1884, news was received from Guayaquil that a general rising against the Government had been arranged, and that in anticipation of it Gen. Alfaro had left the Bay of Panamá, on November 6, in the Alajuela, with 200 Ecuadorian exiles for Esmeraldas. Scattered bands had taken possession of several towns, and in some instances fighting occurred, attended with loss of life. In one of these fights on the slope of the Cotopaxi volcano, twenty or thirty men were killed, and the Government force was compelled to retreat. The rebels on the coast were more unfortunate. After a fight at Tumaco between the Alajuela and the Nueve de Julio, Alfaro effected a landing on the Ecuadorian coast. On November 30 he endeavored to capture Puertoviejo, but was defeated by the Government forces and compelled to seek safety in flight. Gen. Alfaro then returned to the Alajuela, leaving his men to join the parties in revolt in the interior. On December 8 he moved toward Bahia, and when off Las Cruzitas fell in with the Government steamer Huacho. He steamed alongside of her, and, after a heavy fire, carried her by boarding. She was full of troops, to whom her bare hull offered no protection, and it is said that at least 400 men were killed or wounded. These belonged to the Government party.

While the victors were examining their prize, the Nueve de Julio, another Government vessel, put in an appearance. The Huacho was useless for fighting, and the Alajuela was damaged and her captain dead. It was then determined to run her ashore, take out what could be removed in a hurry, and burn her. This plan was followed, and the Nueve de Julio proceeded to Bahia with her crippled consort.

A letter from Quito, dated end of December, says: "This capital is a veritable Babylon. No one appears to comprehend the political sentiments of his neighbor, and the panic in the Government files is increasing daily. Gen. Victor Proaño and other notables have been arrested on suspicion of sympathizing with the revolutionists. The prisons of Guayaquil are full of suspects, among them Señor Pastor Intriago and a number of his workmen, who are accused of having given a canoe to Marcos Alfaro to enable him to go up the river Guayas. Vice-President Guerrero, who is in power in this city, issued a proclamation on Nov. 19, calling upon the people to support him."

Gen. Alfaro is the leader of the Liberal party, and it is asserted by those in favor of his accession to power that if he succeeds in the revolution he has undertaken the church and state will be separated, and religious toleration established for the first time in the republic.

National Indebtedness. — The foreign debt amounts to £1,824,000, contracted in England in 1855, and the internal debt to £3,200,000. The annual income of the Government is $4,000,000 in silver, and the outlay $3,360,000.

The amount of revenue collected from customs at Guayaquil in 1883 was $1,497,210, of which $1,383,250 was on imports and $113,960 on exports.

Railroads.—The railway from Yuaguachi to the river Chimbo, 77 miles, is completed and in operation.

Telegraphs.—Since Oct. 1, 1882, the republic has been in direct communication with the rest of the world by means of a land line of telegraph from Guayaquil to Ballenita, and cable from the latter to the Isthmus of Tehuantepec, whence there is communication with New York. The company owning the line is the Central and South American.

Mail Steamship Communication.—Since Jan. 1, 1884, the Pacific coast steamers south of Panamá are running on a time-table without reference to the steamers plying between Aspinwall and New York, sometimes making connections, at other times not.

Commerce.—The exportation of merchandise in 1883 amounted to $4,923,300, the chief articles being cocoa, 168,600 quintals, of 10½ pounds American, worth $3,372,200; cascarilla (quinine) bark, $137,000; India-rubber, $428,800; furthermore tágua (vegetable ivory), Guayaquil straw-hats, coffee, hides, skins, etc., making up the rest.

The Church.—The concordat that Pope Pius IX. imposed on the republic in 1868 consecrated the ensuing principles: 1. Neither liberty of conscience nor liberty of association. No religion to be tolerated but the Catholic, nor any society condemned by the Church. 2. Monopoly of education for the benefit of the Catholic clergy. 3. The instruction of children and young people generally in universities, colleges, faculties, schools, both public and private, to be entirely in harmony with the doctrines of the Catholic religion. 4. All ecclesiastical causes shall be judged by ecclesiastic law courts only, Article VIII stipulating that this relates specially and above all to matrimonial suits, and all those concerning the faith. 5. The establishment of tithes for the support of the Church and clergy, one third of this tenth to accrue to the Government. 6. The right of refuge: criminals can not be arrested if they take refuge in a church or any other holy place.

Climate and Resources. — Early in January, 1884, it was reported from Guayaquil that that section was suffering from continued dry weather. The rainy season ordinarily begins in November or December; but early in January the weather continued very dry, not more than one fourth of an inch of water falling within six months. This has had the effect of curtailing the cocoa and coffee crops.

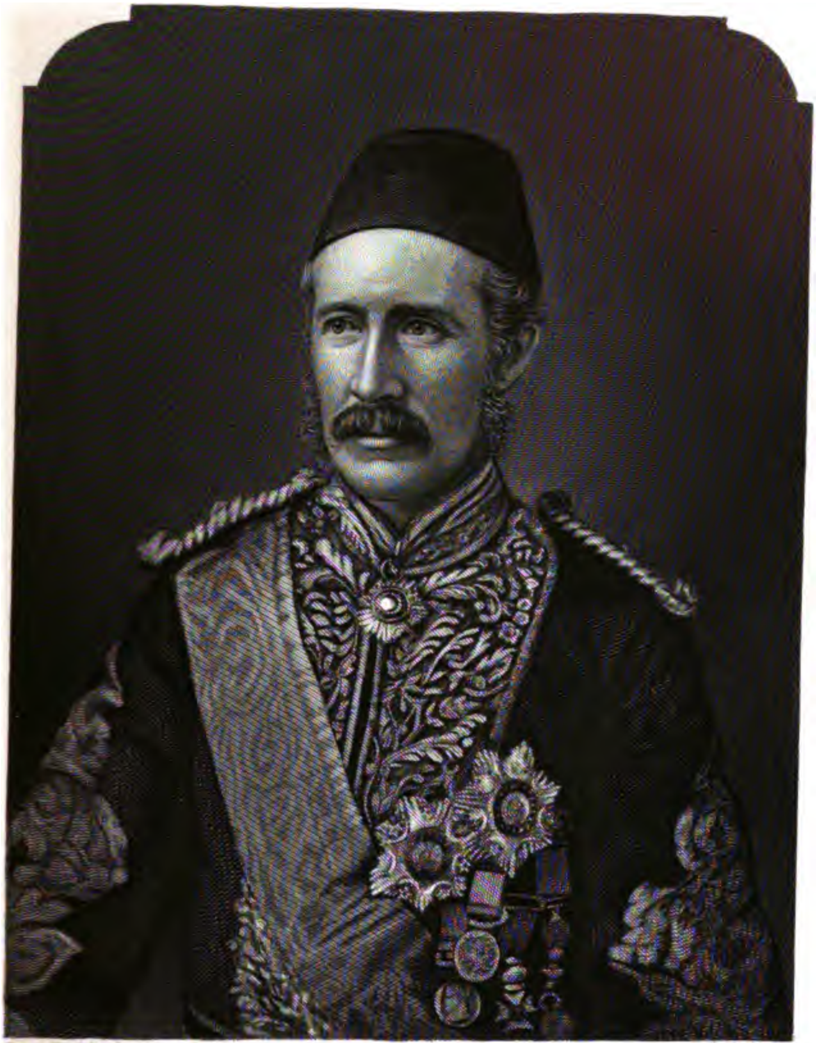
Balsa-Wood.—This wood, celebrated for its extreme lightness, and therefore suitable for life-saving rafts, etc., grows beside the Gulf of Guayaquil, and is used for the construction of craft to sail far out into the ocean for fish, and to carry fruit to ships at anchor in the roadstead. Balsa-wood, when dry, weighs about thirteen pounds to the cubic foot, and has in salt water a supporting power of fifty-one pounds per cubic foot. Consequently, a raft of ten logs, twenty feet long by sixteen inches square, will carry one hundred people.

Cocoa.—The crop of 1884 was short, being only 170,000 quintals up to Nov. 21, against 190,000 in 1883, and 210,000 in 1882.

Local Industries.—The American consul, Mr. Beach, says in his latest report from Guayaquil to the State Department:

> There are in this city a fair variety of manufactories, but none very extensive, the people relying mainly on the outside world for manufactured supplies. The supplies obtained from the United States are large, and the amount is increased annually. The United States supplies all of the sugar-making machinery, all of the saw-mills, all of the planing-mill machinery, nearly all of the steam-engines, all of the carts, all of the sewing-machines, nearly all of the best saddles and harnesses, all of the street-cars, some of the furniture, all of the store-trucks and wheelbarrows, a large share of the axes, many billiard-tables, a portion of the musical instruments, etc. The articles supplied from the United States give good satisfaction, and the trade promises to be largely increased. In some instances the lack of thoroughly skilled labor causes a great abuse of machinery.
>
> The two leading manufacturing establishments of Guayaquil are combined steam saw-mills, foundries, and machine-shops. The two concerns use gang and circular saws, both of which work slowly and indifferently, because of the remarkably springy nature of the wood, a log twelve feet long springing from two to four inches out of line when a slab is taken off. The two mills turn out about 150,000 feet of lumber a year, which is sold at an average of $35. The foundry and machine-shop work is mostly in the line of repairs, and is quite extensive. Castings average to sell at 15 cents a pound. About sixty men are employed in the two establishments, whose wages range from 70 cents to $3 a day, United States currency. There is one steam planing, matching, turning, and small-sawing establishment, whose entire outfit was obtained in the United States. It does the general work of such an establishment, but mainly for carpenters and builders. There are two ice-manufactories, both of whose machinery was obtained in New York. They daily turn out a total of 3,000 pounds of ice, which is sold at seven cents a pound. Each concern employs four men, with wages ranging from $1 to $2 a day. The timber of Ecuador is excellently adapted for ship-building.

EGYPT, a principality of northern Africa, tributary to Turkey. Mehemet Ali, the governor, rebelled against the Porte in 1811, and assumed the powers of government. In 1841 he was recognized, under the guarantee of the five great powers of Europe, as Vali, or Viceroy, and the sovereign authority was made hereditary under the Turkish law of succession. In 1866 Ismail obtained a firman creating him Khedive, or King, and establishing direct male succession by primogeniture, in return for which concessions he submitted to the increase of the annual contribution to the Sultan's civil list from $1,880,000 to $3,600,000. By another firman, issued in 1873, he obtained the rights of concluding treaties and maintaining an army. In August, 1879, the Sultan was induced to depose Ismail I, who was involved in financial difficulties. His son Tewfik was placed on the throne, and the government was administered under the supervision of two Controllers-General, appointed one by the French and one by the British Government, who were given the right of investigation into all departments of the public service, and an advisory voice at the councils of the Cabinet. By a second decree of the Khedive, issued April 5, 1880, an International Commission of Liquidation was appointed to elaborate a financial law to regulate the relations of Egypt with her creditors. The scheme, consolidating the foreign debts, fixing the interest at 4 per cent., and reserving certain revenues to meet it, was sanctioned by the Khedive in 1881. That same year a political movement was set on foot to deprive the Controllers of the extraordinary powers they had assumed over legislation and administration, and place the powers of government in native hands. The French and English governments refused to accede to the demand, in the beginning of 1882, for the transfer of legislative powers to a Chamber of Notables. The movement, which was accompanied by military preparations, was treated as a military rebellion. The British Government sent an army to occupy Egypt, the French



From a Photograph taken at Khartoum. H. B. Hall, Jr

C. G. Gordon

Government declining to join in the intervention. The Egyptian army under Arabi Pasha resisted the occupation, and was finally subdued in September, 1882. It was then disbanded, and English officers were intrusted with the tasks of organizing a new military establishment and a gendarmerie, while the Earl of Dufferin, British ambassador at Constantinople, was sent to Egypt to work out a scheme for the reform and reorganization of the Government. His plan for a native parliamentary government, similar to that aimed at by Arabi, was not put into practice. After the abolition of the dual control by khedivial decree in January, 1883, Sir Auckland Colvin, the English Controller, was appointed financial adviser of the Khedive, and upon his retirement E. Vincent Clifford Lloyd was appointed adviser to the Minister of the Interior. A Council of State, consisting of eleven European and eleven Egyptian members, was opened Oct. 30, 1883. Camille Barrère presented his credentials as French diplomatic agent and consul-general Nov. 22, 1883. The French Government refused to admit the legality of the decree abolishing the dual control until a provisional agreement was arrived at as a basis for a conference of the great powers on Egyptian finances, which met in June, 1884.

The Egyptian Cabinet, presided over by Sherif Pasha, unable to agree to the English proposal to evacuate the eastern Soudan and the Equatorial Provinces, handed in their resignations in the beginning of January, 1884. A new Cabinet was formed January 8 by Nubar Pasha, composed as follows: President and Minister of Foreign Affairs and Minister of Justice, Nubar Pasha; Minister of the Interior and Minister of War and the Marine, Abdel Kader Pasha; Minister of Public Works, Abderrahman Roushdi Pasha; Minister of Finance, Mustapha Fehmi Pasha; Minister of Public Instruction, Mahmoud Falaki Pasha.

Area and Population.—The area of Egypt after the conquests in the Soudan was estimated at 3,000,000 square kilometres, with a population of 16,500,000 people. Egypt proper contained in 1877, according to an official estimate, 5,517,627 inhabitants, of whom 4,948,512 were resident in the moudiriehs, or provinces, and 569,115 in the mohafzus, or town districts. The total area of Egypt proper is 1,021,354 square kilometres, of which 176,546 are embraced in the mohafzus and 844,808 in the moudiriehs. An enumeration in 1883 made the total population 6,798,230, of whom 3,393,918 were males and 3,404,312 females. The foreign colonies in 1878 numbered 44,084 males and 24,569 females, total, 68,653; divided in respect to nationality as follows: Greeks, 29,569; Italians, 14,524; French, 14,310; English, 3,795; Austrians, 2,480; Spaniards, 1,003; Germans, 379; Persians, 752; Russians, 358; Americans, 139; Belgians, 127; Dutch, 119; other nationalities, 204. The number of births in 1877 was 173,529; deaths, 138,668; excess of births, 34,861; natural increment from 1844 to 1877, 1,054,383. The net immigration between 1873 and 1877 was 19,241. The population of the chief cities in 1883 was as follows: Cairo, 368,108; Alexandria, 208,775; Tanta, 33,725; Damietta, 34,036; Mansura, 26,784; Zagazig, 19,046; Rosetta, 16,671; Port Said, 16,560; Suez, 10,913. The population of the three geographical divisions of Egypt Proper was in 1877, exclusive of the town districts, as follows: Lower Egypt, 2,823,995; Middle Egypt, 653,115; Upper Egypt, 1,471,398. The whole country is divided into eleven administrative provinces. The town districts comprise the municipalities of Cairo and Alexandria and six governorships.

The Soudan.—The conquered and annexed provinces on the Blue and White Niles, and in Equatorial Africa, were administered as a single district by a governor-general before the general revolt in those regions, when the authority of the Egyptian Government was superseded by the power of the Mahdi. After the rebellion of Arabi the Soudan was placed in charge of a special ministry. The conquest of this region was begun sixty years ago by Mehemet Ali, who annexed Kordofan and Sennaar, the banks of the Nile, and the Red Sea littoral. Ismail conquered Darfour and the Equatorial Provinces. The eastern Soudan is a level region surrounded by a rim of mountain-chains. The provinces of Sennaar, Fassogle, and Taka, bordering on the Abyssinian plateau, are exceedingly fertile, being copiously watered and enriched by annual alluvial deposits, like the delta of the Nile. They produce abundant crops of cotton, sesame, pulse, durrah, wheat, and other grains. Their forests harbor the elephant, the rhinoceros, the lion, the leopard, the giraffe, and other large animals. The provinces of Khartoum, Kordofan, and Darfour have many of the characteristics of a desert climate. Except in the districts of Bara and Abbu Harras in Kordofan and other depressed oases or mountain-regions, the vegetation is scanty and the earth clothed with green only during the brief rainy reason. Farther north the precipitation falls away to such a degree that the Soudan is separated from Egypt by as arid and desolate a desert region as can be found in the world. The southern portion of the Soudan, being an inviting country easy of approach and of conquest, contains a mixed and varied population, composed of Shilluk, Nuehr, Dinka, Bongo, and other negro races. In the north the population is a mixture of black and light-colored races, in which the Arab blood predominates.

Army and Navy.—According to the plan of Baker Pasha, who was charged with the reorganization of the Egyptian army, the military establishment was to number 10,900 men of all arms, including two regiments of gendarmes of 700 men each. In accordance with the recommendations of Earl Northbrook, the budget for 1885 provides for a reduction of the army to 4,000 men, with 18 English officers, and an increase of the police force by 3,000 men. The navy consisted, in 1881, of 13 steamers, poorly armored.

Commerce and Navigation.—The reported value of the exports rose from 2,750,000 Egyptian pounds in 1855 to 10,280,000 in 1875, 12,980,000 in 1880, 12,980,000 in 1881, 10,840,000 in 1882, and 12,310,000 in 1883, not including the duty-free transit trade with Turkey. The value of the foreign trade with various countries was in 1883 as follows, in Egyptian pounds:

COUNTRY.	Imports.	Exports.
Great Britain	3,882,470	8,625,940
France	1,197,390	1,054,050
Austria	970,900	608,690
Italy	279,480	317,290
Turkey	108,450	340,160
Russia	157,580	409,700
United States	97,980	29,840
Greece	23,620	73,090
Other countries	611,090	218,810
Total	7,328,860	12,177,070

The non-dutiable exports to Turkey, re-exported merchandise on which duty has been paid in Egypt, amounted to 132,810 pounds, and the imports from Turkey of the same class to 1,268,110 pounds, making the total value of the exports 12,309,880 pounds, and of the imports 8,596,970 pounds.

The value of raw cotton and other textile materials exported was 7,546,000 pounds; of cotton-seed, 1,697,000; of cereals, 1,644,000; of sugar, 394,000. The value of the import of textile manufactures was 3,021,000 pounds; of coal, 915,000; of drugs, dyes, and chemicals, 459,000; of fermented liquors, 342,000; of metals and metal manufactures, 275,000; of wood, etc., 283,000.

The total tonnage entered at Alexandria, Port Said, Suez, and other Egyptian ports in 1880 was 3,242,022 tons, of which 294,133 tons were under the Egyptian flag. The steam tonnage was 2,845,738. The total tonnage cleared was 3,255,614 tons, the steam tonnage 2,865,293. The Government owns 16 packet-boats, which ply between various ports in the Red Sea and the Mediterranean.

Railroads, Posts, and Telegraphs.—The total length of railroads in operation in 1883 was 1,518 kilometres, all state property.

The number of letters forwarded in 1883 was 2,497,000; of registered letters, 213,069; of postal-cards, 109,000; of newspapers, 1,340,000; the value of postal-orders, 565,027 Egyptian pounds; of money shipments, 398,017 pounds; the number of international letters and postal-cards, 2,177,000; receipts in 1883, 80,665 pounds; expenses, 58,618.

The length of telegraph lines completed in 1878 was 7,841 kilometres; of wires, 12,040, of which 8,097 were in Egypt proper, and 3,943 in the Soudan.

Finances.—The revenue is derived chiefly from a land-tax which is exceedingly heavy, approaching in amount the rent paid to proprietors in other countries, but for which the cultivators receive a partial return in the irrigation works constructed and maintained by the Government. The revenues of four of the provinces, together with the customs and tobacco duties, are assigned to the service of the unified debt; the railway receipts and port dues of Alexandria to that of the preference debt. The yield of the land-tax in all the provinces within the past few years has varied from £4,250,000 to £5,250,000, the latter amount representing an average tax of $5 an acre, taking the cutivated area at 5¼ million feddans or acres. The revenues assigned to the unified debt produced, in 1880, 3,262,599 Egyptian pounds (1 Egyptian pound = $5); in 1881, 3,310,802 Egyptian pounds. Those assigned to the preferred debt yielded in 1880 1,281,621 Egyptian pounds; in 1881, 1,391,353 Egyptian pounds. The total yield of the assigned revenues was 4,544,220 Egyptian pounds in 1880, and 4,701,655 in 1881. The unassigned revenue, or ordinary revenue, available for the expenditures of the Government, subject to certain prior charges, comprises the land-taxes of the other provinces, the taxes of Cairo, Alexandria, and the six town governorships, the receipts of the tribunals of reform, of the mail-steamers and post-office, the salt-tax, and revenues from other sources. The unassigned revenues yielded, in 1880, 4,391,078 Egyptian pounds; in 1881, 4,310,116 pounds; making the total revenue, in 1880, 8,935,298; in 1881, 9,011,771 Egyptian pounds. Until the rebellion of Arabi, and the British occupation, the ordinary as well as the assigned revenues showed a surplus. The events of 1882 left a deficit of 191,487 Egyptian pounds, besides 97,754 pounds required to make up the interest of the domain loan and the expenses of the British occupation, which amounted to about 700,000 pounds. The budget for that year estimated the receipts at 8,746,556 pounds, and the expenditures at 8,463,968 pounds. The budget for 1883 placed the total receipts at 8,804,627 pounds sterling, and the total expenditures at 8,581,918 pounds sterling. The unassigned revenues yielded, as usual, a surplus; but the expenditures, under English protection, increased while the revenue declined, so that instead of a surplus the budget showed again a deficit. The closed accounts showed the total receipts to be 8,934,075 Egyptian pounds, and the total expenditures 9,156,989 Egyptian pounds. The chief heads of expenditure were as follow: Turkish tribute, 678,612 pounds; interest on the public debt, 3,746,961 pounds; civil list, 314,508 pounds; the Khedive's Cabinet, 61,977 pounds; railroads and telegraphs, 530,240 pounds; port of Alexandria, 31,040 pounds; Ministry of War, 164,710 pounds. Of the total revenues, 4,918,353 pounds were derived from the land-tax; 78,234 pounds from the Alexandria harbor dues; 1,233,960 pounds from the railroads and telegraphs; and 758,095 pounds from customs. The net proceeds of the last three sources of revenue and 2,482,251 pounds of the land-tax and other taxes, being the revenues of the four assigned provinces, went for the interest and amortization of the unified and privileged debts. The total gross yield of the assigned revenues was 4,552,540 pounds; the expenditures for interest and cost of administration, 4,130,838 pounds.

The public debt, as settled by the law of liquidation, amounted in 1882 to £97,161,220 sterling. This sum was composed of the unified debt, paying 4 per cent., amounting to £57,023,780; the preference debt, paying 5 per cent. interest, amounting to £22,529,800; the domain loan, paying 5 per cent., in amount £8,362,280; and the Daira Sanieh loans, paying 4 and 5 per cent., in amount £9,245,360. For the service of the domain and Daira loans the profits of the lands on which they were a lien were applied, any deficiencies being made good out of the public revenue. The Moukabala, a forced internal loan, was scaled down and converted into annuities of the annual amount of 150,000 Egyptian pounds, running fifty years. The Suez Canal shares, purchased in 1875 by the British Government, were hypothecated already by the Khedive Ismail, who agreed, in lieu of dividends, to pay interest during the period for which he had alienated the dividends. This obligation constituted an annual charge on the Treasury of £200,000. The Alexandria indemnities and the deficits of the treasury arising from the English occupation and administration created a floating debt, amounting in the middle of 1884, when the English Government called a conference to discuss Egyptian finance, to about £8,000,000.

The Policy of evacuating the Soudan.—The English diplomatic agent in December, 1883, conveyed to the Khedive the advice of the English Government that the southern provinces beyond the ancient frontier should be abandoned. The Government of the Khedive, in a note, dated Jan. 2, 1884, demanded of the British Cabinet that England should either undertake the defense of the Soudan, or should permit the Khedive to transfer the territory between the Red Sea and the Upper Nile to the Porte as an Ottoman province, which would enable Egypt to defend herself within her ancient boundaries without the help of England. The answer of the English Cabinet was, that it had no objection to the cession of territory, provided that Turkey made Suakin the base of operations, keeping out of Egypt proper, and that she undertook the enterprise at her own cost and risk. Maj. Baring at the same time repeated the advice of the English Government to evacuate Khartoum and establish a line of defense at the defiles of the second cataract of the Nile, corresponding with the boundary of Egypt proper.

Change of Ministry.—The policy of abandoning the Soudan and the Equatorial Provinces, which the English Government insisted upon after the destruction of Gen. Hicks's army, was for several weeks the subject of an earnest dispute between the English Resident Minister and the Egyptian Cabinet. The Egyptian ministers declared that the Khedive had not the right to give up any part of his dominions, as they formed an integral part of the Ottoman Empire, and were confided to his protection by firmans of the Porte. The English agent finally informed Sherif Pasha that, as long as British troops occupy Egypt, the English Government would not allow its advice to be contested, but insisted upon its being accepted and carried out. The ministers thereupon handed in their portfolios to the Khedive, stating that the English demand was a violation of the rescript of August 28, 1878, and rendered it impossible for them to fulfill their duties. The Khedive sought to induce Eyub Pasha, Riaz Pasha, and others, to take the post of Premier, but found no Egyptian willing to assume the responsibility of abandoning the Soudan. At last he yielded to the pressure of the English Resident, and accepted the nominee of the latter, the astute Armenian, Nubar Pasha, Ismail Pasha's former Prime Minister.

English Administration of Egypt.—None of the English measures of relief or reform were carried out in a way to accomplish their object, however correct in principle. The taxes were made payable in kind, which afforded a better price to the fellah than he could obtain in the disturbed state of the markets; yet this provision gave opportunities to the officials for extortion. The promised remission of the land-taxes in Upper Egypt produced uncertainty, and prompted the fellaheen to refuse to pay their rents, in the hope that they also would be reduced. The efforts to economize in the administration all failed. New methods were found unworkable after a useless expenditure. When an Englishman was appointed to take the place of three or four French or native officials, the considerable reduction in salaries apparently attained was turned into an increased charge on the budget by the necessary employment of clerks and translators. Under the direction of Mr. Clifford Lloyd, sweeping changes were attempted in the internal administration, which aimed to replace by a central power, wielded by Englishmen in accordance with English ideas, not only the authority of the ministry, but that of the provincial mudirs. In their haste to reform the abuses connected with the administration of justice and the prisons, the collection of taxes, etc., and to impress an English character on the system of administration, they disregarded alike the customs and sanctions of the Mohammedan law and the principles and practices of French justice and administration naturalized in Egypt. The result was the derangement of the whole machinery of justice and government. The authority of the provincial governors, in the attempt to curtail the arbitrary power which they abused, was annulled to such an extent that the fear of the law declined among the people, and crime and violence became prevalent. The foreign colonies, as well as the native community, were alienated by these unfortunate attempts at reform. The French diplomatic agent began to assume a bolder tone. Nubar Pasha asserted an independent judgment for the first time, and protested vigorously against the removal of officials obnoxious to the English agents, and the disorganization of the public service by their arbitrary proceedings, some of them in contravention of positive laws. He even threatened to resign. The British ministry therefore recalled Clifford Lloyd in May. Sir Evelyn Baring also retired, and was succeeded by Mr. Egerton.

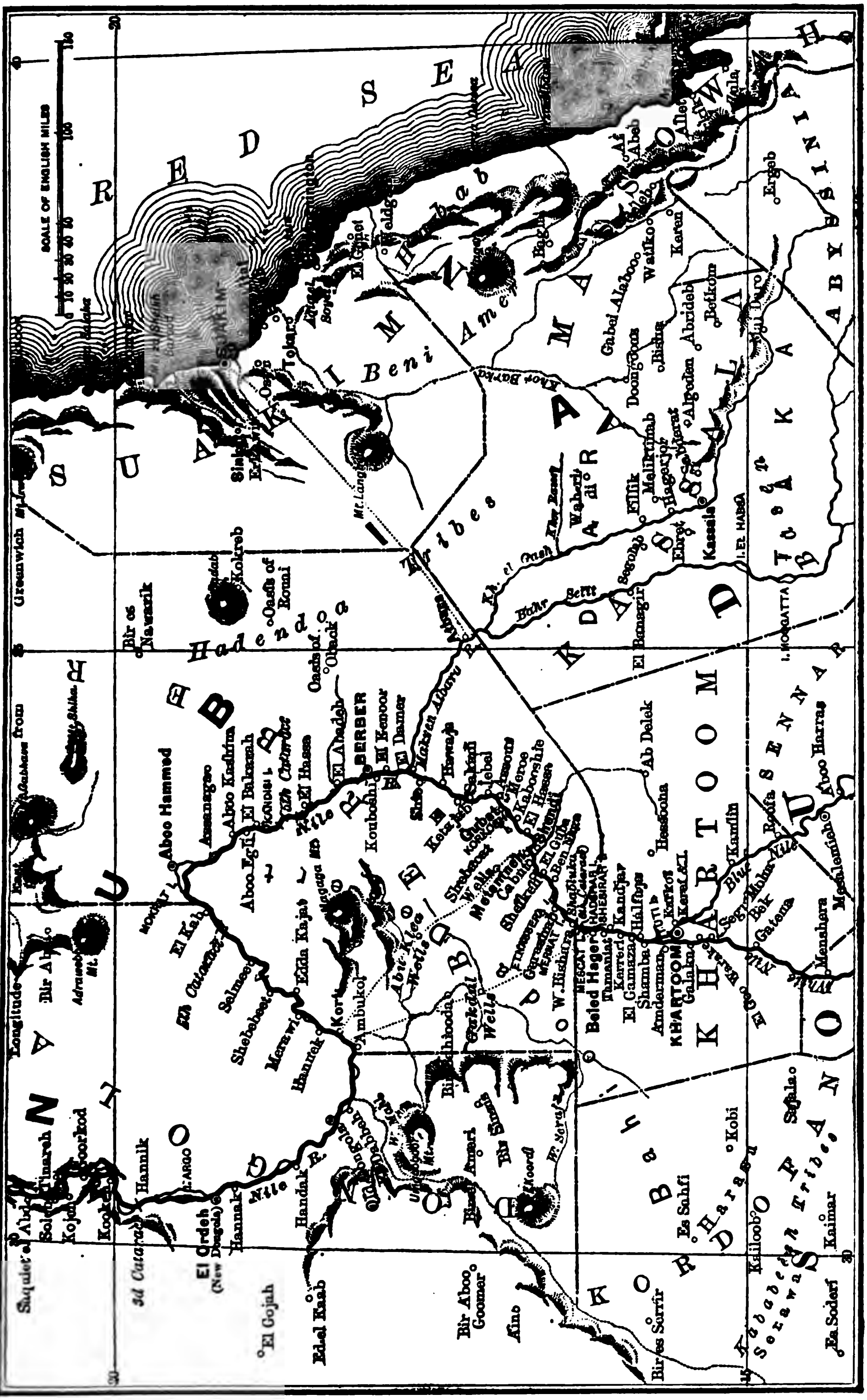
The prisons, which were in a shamefully unsanitary condition, were made more habitable by the efforts of Mr. Lloyd. Among the measures enacted through the influence of the English, but difficult of speedy enforcement, was a decree abolishing domestic slavery throughout Egypt, promulgated in August.

A finance committee, to pass upon claims against the Government, was established March 6, 1884, composed of the Minister of Finance, Financial Adviser Edgar Vincent, Under-Secretary of Finance Fitzgerald, and M. Mazuc. Through this committee the English agents practically controlled the financial department, and gave authoritative advice to the heads of other branches of the Government. Mr. Vincent proposed to endow it formally with the function of framing the budget.

A tobacco convention was concluded with Greece March 3, 1884. The receipts of the Treasury from tobacco duties were increased, by the admission of Greek tobacco under the convention, at the rate of 122 per cent. over those of 1883. The Turkish Government raised objections to the convention. The legitimate imports of Turkish tobacco were not diminished, but the smuggling-trade was almost extinguished.

Brigandage.—In the early part of the year the effects of war, agricultural distress, and the complete disorganization of government were manifested in robberies and deeds of violence never before known. Bands of mounted robbers, twenty to forty in number, plundered farms and villages by daylight. Burglaries were committed at night in great number. In the province of Fayoum eight Europeans were murdered in April. The police, under English direction, were worthless. The further the English carried out their plans in the administration of justice and police, the more frequent and startling became the crimes. This fact suggested to the English authorities the suspicion that the banditti were employed by corrupt Egyptian officials for the purpose of bringing their reforms into discredit. After the departure of Clifford Lloyd, and resumption of a fuller control over the administration by the Egyptian ministry, the re-established influence and authority of the local Mohammedan officials sufficed to check the spreading anarchy to some extent.

The Land-Tax.—The condition of the farmers was in general worse after two years of English control than before the occupation. This was owing to the financial and political crisis; to the exaction of the full amount of the taxes in the war year, which compelled the poorer proprietors to borrow at exorbitant interest, or sell their crops in advance at half their value; to the cattle-disease imported by the English army; to the fall in the price of wheat and other products; and to other causes. In Upper Egypt especially, where only one crop is grown in the year, and that not so profitable as the produce of the Delta, there was considerable distress. In that part of Egypt where the cultivable area is a narrow strip, about four miles in average breadth, overflowed by the Nile, there was great inequality, owing to the taxation of peasants for lands that had been taken by the Government for canals, railroads, etc., or that had been washed away by the river. There also extortion was more freely practiced by the collectors of taxes. A decree making the taxes of 1884 payable in produce, gave the officials a new opportunity to screw out of the peasants from 2 to 4 per cent. of the amount of their taxes. The exploitation of the poor by the rich proceeded so fast under the reign of Ismail that a large proportion of the former small proprietors were now reduced to the condition of cotters and laborers. The present agricultural crisis, and the administrative confusion, facilitated this process. Some relief was afforded in Lower Egypt through the restoration of the *barrage* and connecting canals by Colonel Scott-Moncrieff, which not only extended the area of cultivation, but released the fellaheen from the *corvée*, or forced labor for cleaning the canals, and from the cost of mechanical irrigation by steam-pumps and other appliances, amounting sometimes to £1 an acre. With the £1,000,000, which the British Government proposed to borrow for the purpose, he intended to extend these works, but would have nothing for irrigation and reclamation in Upper Egypt. Such improvements in Upper Egypt he deemed profitable; but they would require a much larger sum in addition. The *cadastral* survey was interrupted by the English on account of the financial exigency of the Government. Until this great work was completed, they were afraid to attempt the equalization of assessments, since Nubar Pasha considered that a provisional measure would unsettle land values and the confidence of the people in the finality of the determinate adjustment. The measures proposed for relief were based on the expected reduction in the interest on the debt. They were the remission of the date-tax, the salt-tax, river and canal tolls, the *octroi*, or market dues, and export duties, the reduction of railroad tariffs, etc. It was proposed, however, to equalize the taxes on the Ushuri and Kharadji lands. The former were originally waste lands, granted to wealthy people for reclama-


RED SEA
SCALE OF ENGLISH MILES
SUAKIM
Beni Amer
Hadendoa
BERBER
Nile
KHARTOOM
Blue Nile
White Nile
ABYSSINIA
SENNAAR
KORDOFAN
DONGOLA
NUBIA
Aboo Hammed
Kassala
Massowah
Greenwich
Longitude

tion, and exempt from taxation. Said Pasha finally imposed a tax, which he fixed at a rate representing one tenth of the produce; hence they came to be known as Ushuri, the name applied in conquered countries to the lands of the true believers, which are subject only to the religious tithes. Mr. Rowsell, who investigated the land question at the request of Nubar Pasha, reported that there are in Upper Egypt 1,607,787 feddans of Kharadji, on which the average tax is 119 piasters per feddan, and 436,907 feddans of Ushuri, which pays an average rate of only 37·22 piasters; and in Lower Egypt 1,738,693 feddans of Kharadji, paying 138·8 piasters per feddan, and 871,019 feddans of Ushuri, paying 59·39 piasters. The tax placed upon the Ushuri by Said Pasha was one half the usual rate, but in the course of time the proportion has changed to the disadvantage of the poorer proprietors of the Kharadji lands.

The Financial Question.—The English found their hands bound by the bankruptcy of the Egyptian Treasury, which resulted from their military and political interference, and the manner in which it was carried out. Whatever slight improvements were wrought in the administration before the summer of 1883, came to a stand-still. From that time lawlessness and crime increased. English officials, who were appointed in the place of Egyptians, were less competent than they to check the tide of anarchy. The disastrous expeditions of General Hicks and General Baker not only added to the financial difficulties, but the policy of abandoning the Soudan, insisted upon by the British Government, alienated the governing class, and increased the hatred of the people toward the English. This policy had its grounds in the insolvent condition of Egypt. Besides, the English were not interested in having the Soudan remain under Egyptian authority, though they were in establishing their prestige independently in that fertile region, rich in its own productive capacity, and in its trade-routes to inner Africa.

The accumulated deficits of the Treasury for three years amounted to about £8,000,000, besides an estimated deficit for 1884 of £512,000. The Alexandria indemnities made £3,950,000 of the deficit, £300,000 of the indemnities having already been paid by the Treasury. The estimated cost of the evacuation of the Soudan made £1,000,000 more. The charge for the British army of occupation added a large annual sum to the expenses of the Egyptian Government. The British Government proposed to meet the deficit by a new loan, but was embarrassed by the Law of Liquidation, which sequestered the most productive revenues for the service of the existing debt. In the settlement of the debt, arranged by the International Commission in 1879, England, France, Germany, Austria, and Italy were parties. The receipts of the state railroads and telegraphs, and the port dues of Alexandria, were hypothecated for the payment of the interest on the preference debt. To the service of the unified debt were assigned the tax receipts of Garbieh, Menoufieh, Behara, and Siout, four of the richest provinces of Egypt, subject to a charge of 7 per cent. for collection. The ordinary or non-assigned revenues were also subject to fixed charges for the tribute to the Sultan, the interest on the Suez Canal shares purchased by the British Government, a subvention to the Daira revenues, and the amnesty for payment of the Moukabala claims, amounting altogether to £1,060,000 per annum. The assigned revenues met the interest charges on the preference and unified stocks, and yielded besides an annual surplus, which was applied to the payment of the principal under the Law of Liquidation. During the three years, 1881–'83, nearly £2,000,000 of the debt was extinguished by this sinking fund. The estimated surplus for 1884 was £400,000. The total income from the non-assigned revenues in 1881, the year before the war, was £4,454,000. The estimated ordinary revenue for 1884 was £4,738,000. The proposed loan of £8,000,000 sterling would provide for future expenditure £1,000,000 for the projected improvements in the irrigation canals, besides an equal amount for the evacuation of the southern provinces. According to the reports of Edgar Vincent, the English financial adviser of the Egyptian Government, the deficit of the Egyptian budget in 1882 was 850,000 Egyptian pounds, and in 1883 1,635,000 Egyptian pounds, making, with the estimated deficit for 1884, 2,997,000 Egyptian pounds. The extraordinary expenditures at the time of Arabi's rebellion amounted to 751,000 Egyptian pounds. The campaign of General Hicks in Kordofan cost about 500,000 Egyptian pounds. The expenditure for the British military occupation was 174,000 Egyptian pounds in 1882, 425,000 in 1883, and 360,000 in 1884, not including about 100,000 Egyptian pounds a year for camp and barrack expenses, requisitions of produce, etc. The reform experiments in the gendarmerie, the police, the tribunals, inspectors of the administration, etc., entailed during the three years the expenditure of about 200,000 Egyptian pounds. The Suakin campaign cost about 150,000, General Gordon's mission 200,000 Egyptian pounds. The salaries of the English officials added 70,000 or 80,000 Egyptian pounds a year to the cost of the administration.

Anglo-French Agreement.—To extricate Egypt from the financial difficulties into which she had fallen under English control, the British Cabinet found it necessary to appeal to the powers to authorize a revision of the Liquidation Laws, which would increase the disposable revenue and improve the credit of the Egyptian Government. It was deemed reasonable that the bondholders should sacrifice a part of their interest for the sake of re-establishing a stable order and restoring public credit in

Egypt. Nearly all the Egyptian bonds were held on the Continent of Europe, principally in France and in Germany. The English Government desired to limit the discussion to the financial question, but as this involved the questions of the duration of British occupation, of the present methods of administration, of the administrative reforms to be introduced, and of the guarantees for the stability of the order of things to be established, it was impossible to confine the powers to that subject. On the 19th of April Lord Granville sent a circular dispatch to all the great powers, and to the Porte, inviting them to a conference in London to consider whether there was not ground to modify the Law of Liquidation and consult upon the kind of modification that was advisable. Austria, Germany, Russia, and Italy accepted the proposal without reserve; France accepted the principle of a conference, but requested a preliminary exchange of views.

This was the first communication on Egyptian affairs between the English and French Governments since the refusal of M. Duclerc to recognize the abolition of the dual control when he broke off negotiations, Jan. 4, 1883, with the declaration that France resumed her freedom of action. As the result of negotiations between M. Waddington and Earl Granville, an understanding was reached which was formulated in two notes expressing the mutual engagements of the two governments with reference to Egypt. In M. Waddington's note, dated June 15, the French Republic, for the first time, formally renounced the condominium, and disavowed any intention to seek to reestablish the dual control. It also promised never to undertake a military intervention in the Delta of the Nile without the consent of Great Britain. In Lord Granville's note, bearing date of June 16, the English Government promised to withdraw the troops from Egypt before the beginning of 1888, or in case it be deemed necessary for the security of Egypt to have them remain longer, to obtain the consent of the powers to a prolongation of the term of occupation. Great Britain agreed, moreover, to give the Commission of the Caisse de la Dette Publique, under the presidency of an Englishman, a consultative voice in the preparation of the budget, to be modeled after a normal budget which the English Government would submit to the Conference; also, the right of veto over any items of expenditure that would prove an excess, except extraordinary expenditures required for the preservation of order in times of public peril. After the withdrawal of the British troops the Caisse would exercise the additional power of revenue inspection. The English Government promised also to submit to the powers and to the Porte, at or before the expiration of the military occupation, a scheme for the neutralization of Egypt, on the basis of the principles applied to Belgium, and proposals for the neutralization of the Suez Canal in conformity with the English circular of January 3d, 1883.

The system that the English ministry purposed establishing in Egypt was one in which the administration of the government and legislation should be in Egyptian hands, in accordance with the principles of Lord Dufferin's neglected scheme, but the finances should remain under the supervision of Europeans. The scheme of financial control proposed in the Anglo-French agreement was based upon a dispatch from Sir Evelyn Baring, dated June 2, in which a final arrangement of the finances was declared desirable, to insure which a control over the expenditures of the Egyptian Government should be exercised through the agency of Europeans. The powers that would be intrusted to the Public Debt Commission, under the provisional understanding with France, are nearly the same as those formerly exercised by the Dual Control, excepting the right of sitting at Cabinet councils, which resulted in the dictation of the controllers in political matters. The Commission of the Caisse consisted of an Austrian, an English, a French, and an Italian member. It was the intention to give the other powers representation when the functions of the body were extended as proposed. The scheme was described by its opponents as a multiple control, which would be divided by rivalry and discord. The Anglo-French agreement was disliked in England by the Tory party and by the considerable section of the Liberal party which desired to perpetuate in one form or another the exclusive British authority over Egypt.

The Conference.—The Egyptian Conference met in London, June 28. Since the preliminary agreement with France covered the political questions, the Conference confined its attention to financial subjects. The scheme of financial relief proposed by Great Britain was worked out by a committee consisting of Sir E. Baring, Sir R. E. Welby, Sir C. Rivers Wilson, and Sir J. M. Carmichael. The Conference appointed a Commission of Financial Experts and did not meet again till their report was ready, July 22. The English and French members of the Commission differed as to the normal revenue, which MM. Barrère and De Blignières maintained was underestimated by about £600,000.

The English proposals, presented by Mr. Childers, were as follow: 1. A loan of £8,000,000 sterling, to be raised on the guarantee of England, to have priority over all other loans, the annual charge for interest and sinking fund being fixed at 4½ per cent. 2. The interest on all existing loans, including the Suez Canal shares held by the British Government, to be reduced by ½ per cent. 3. All sinking funds to be suspended. 4. Any suplus of revenue to be divided into two parts, one to be reserved for the requirements of the following year, and the other to be applied to the redemption of the debt. 5. The cost of maintaining the army of occupation to be fixed at a maximum of £300,000 a year. The normal budget submitted by the English delegates estimated the receipts at 8,855,000 Egyptian pounds and the expenses of the Government at 4,667,000 Egyptian pounds. The cost of the army of occupation for the 3½ years being fixed at 293,000 Egyptian pounds a year, the reduction of 511,000 Egyptian pounds per annum in the service of the debt would leave the Treasury with a surplus of 135,000 Egyptian pounds. The English financiers framed their estimates with reference to an eventual reduction of the land-tax. The French delegates disputed the necessity of reducing the land revenue, believing that their pressure on the fellaheen would be remedied by equalizing the taxes on Ushuri and kharadji lands. The French experts estimated the revenue £727,000 higher than the English. The yield of the land-tax was reckoned at 200,000 Egyptian pounds more, the railway receipts at 80,000 Egyptian pounds more, and the estimate of 869,000 Egyptian pounds for irrecoverable taxes was reduced to 72,000 pounds. These estimates were substantially approved by the German, Austrian, and Russian delegates. On the basis of this calculation the French Government opposed any reduction in the interest of the public debt as settled by the Law of Liquidation, but proposed that the sinking funds should be suspended, that the interest on the Suez Canal shares held by the British Government should be lowered, and that the sinking fund of the new loan should not go into operation until the other sinking funds were re-established. The guarantee of the new loan France wished to make a collective one of all the powers. The English estimates of the administrative expenses were accepted, but an inquiry into the land revenue was asked for, to be undertaken by England and reported to the Conference in 1886. The English representatives made a counter-proposal to raise the new loan without any guarantee, paying in its scrip the Alexandria indemnities, and making its service the first charge on the Egyptian revenue; after which would come the administrative expenses, as calculated in the normal budget, the cost of the army of occupation, the working expenses of the railways, taken at 45 per cent. of the receipts, and the Moukabala claims, amounting to 150,000 Egyptian pounds per annum; and then, as the third charge, the interest on the existing debts. An alternative proposition was that England should guarantee the portion of the new loan not applied to the payment of the indemnities, and that the proposed reduction in the interest of the public debt should cease after ten years, when a new Conference should be called. M. Waddington demanded an inquiry as to the necessity of reducing the land-tax. A final proposition was made, July 29, to let the reduced interest on the old debts be a second charge on the revenue after the pre-preference loan for the payment of the indemnities, and then, after meeting the cost of administration, military occupation, etc., to pay the deducted ½ per cent. if there was a surplus, the arrangement to hold good for three years. After receiving instructions from his Government, M. Waddington on August 2 made a final counter-proposal that the new loan should be the first charge on the revenue; the full interest on the other loans the second; the sinking funds being suspended for three years; and the administrative expenses, as fixed by the English financiers, the third; that any surplus should go to the treasury, and any deficit be subject to the decision of the Commission of the Caisse, to consist of seven members, who could enact a reduction of interest by a unanimous vote, the question to be referred to the great powers if they differed. The French Government persisted in its request for an inquiry into the land revenue. Count Nigra, the Italian plenipotentiary, acting under instructions, supported the English propositions. Musurus Pasha was prepared to support England, but protested that no modification in the finances, administration, or integrity of Egypt could take place without the consent of the Sublime Porte, and that in respect to any proposal for neutralization Turkey reserved liberty of action. Lord Granville pressed for a vote on the final English proposal, but the German, Austrian, and Russian representatives insisted on waiting for the decision of France. They held themselves neutral during the discussion, declining to pronounce any opinion, in view of the material differences of view between the powers most interested. Count Münster was instructed by his Government to request the Conference to take up the subject of sanitary precautions in Egypt and the Suez Canal, as affecting the public health of Europe; but Lord Granville, as President of the Conference, ruled the question out of order. Upon the submission of the French ultimatum, Lord Granville objected decidedly to its terms, and particularly to conferring upon the Public Debt Commission a mastery over the Egyptian Government, such as would result from the proposed control of expenditures upon the unavoidable occurrence of a deficiency. He thereupon declared the Conference adjourned *sine die*, announcing that England regained her liberty of action. M. Waddington called for an adjournment to some future date, but Lord Granville pronounced the Conference at an end. The representative of France delivered a sharp protest against this abrupt termination. With the failure of the Conference the Anglo-French agreement lost its binding force.

Attitude of the Various Powers.—None of the powers was more anxious for the termination of the British protectorate than Turkey. The aim and desire of Turkish statesmen was to eliminate foreign influence from Egypt, and establish in Cairo the direct authority of the Porte again, as far as was possible. As against exclusive English predominance a multiple control was preferred, as less derogatory to the dignity and prejudicial to the interests of the suzerain power. The English occupation was a heavy blow to the religious policy of the Sultan, and compromised him in his quality of Caliph, affecting his power far more seriously than was measured by the extent to which his merely political authority and interests in Egypt were overridden.

The Porte addressed a circular to the great powers on the 17th of June. It recalled the facts of the rebellion of Arabi, the invitation of the Porte to co-operate with England in restoring order, but accompanied with conditions and restrictions that rendered it unacceptable, and the intervention of England alone. As the task was now so far completed that the moral authority and prestige of the Sultan were sufficient to insure tranquillity, it was, in the opinion of the Porte, advisable that the English army of occupation should be withdrawn. If, however, the great powers considered that an extraneous military force was required, such a force could be supplied by the Sultan alone, or in conjunction with England, France, Italy, and Spain.

France, while upholding the rights of the bondholders in defense of the interests of French investors, aimed mainly at the exclusion of the English from Egypt, and the establishment of a joint European control. This would repair the loss of dignity she sustained in permitting England to undertake alone the Egyptian expedition, and to oust her from the dual control. It would, moreover, give French influence and French commercial interests a chance to expand again, whereas the policy pursued by the English was to discourage and supplant French influence. Their efforts to uproot the traditional associations of Egypt with the French were not successful. The power that France exercised in the Egyptian question was derived as much from her influence in Egypt as from her position in Europe. In proposing a multiple control, France not only subserved in the best way the interests that the English occupation left it in her power to assert in Egypt, but derived a satisfaction and various advantages in her other political relations from placing herself in accord with Europe. On account of her possessions in Africa, France was prepared to oppose any extension of Turkish influence in Egypt. For the same reason she regarded the movement of the Mahdi as a menace to her interests, and called for its suppression.

Germany had the same private financial interests to defend as France, was glad to act in accord with the republic as a step toward the reconciliation of the French people, and regarded with satisfaction any hindrance to an alliance between England and France. She desired, also, to curb the pretensions of England to the empire of the seas, and to predominance in the uncivilized parts of the earth, where the German Government was preparing to support the growing commerce of its people with manifestations of naval power and the acquisition of territorial control.

Germany also wished to sustain the policy of Austria, which regarded the extension of English interests in the eastern Mediterranean as detrimental to Austrian commercial prospects, and specially deprecated the annexation of Egypt by England, fearing that it would excite Russian aspirations in the direction of Constantinople, which England would not have the same motives to resist as before. Russia also opposed the establishment of British dominion in Egypt, probably regarding it as anticipating the final partition of the Turkish Empire, in which Egypt was to go to Great Britain as a compensation for the establishment of Russia in Constantinople.

Italy was also an adherent of international control. She voted with England at the Conference in the hope of bringing about a compromise. She was actuated to some extent also by her jealousy of French expansion in the Mediterranean. Her neutral attitude is explainable further by her hope of succeeding England in the military occupation, by agreement between England and the powers. After the Conference, the Italian Government was formally thanked for its support of the British proposals, whereupon the German Government extended a similar recognition for the Italian vote in favor of its sanitary proposition.

The Suspension of the Law of Liquidation.— When they failed to come to an agreement with the powers at the Conference, the English found themselves in Egypt in a position in which they must either raise money on the credit of the English Government or lay hands on the assigned revenues, and proceed single-handed to curtail the interest of the bondholders in the face of the European concert to which they had appealed. Either course was calculated to involve them more deeply in Egypt. Lord Northbrook was sent to confer with the Egyptian Government. The Conservatives criticised the non-committal character of his instructions, which were couched in the phrase "to report and advise," used also in General Gordon's original instructions, and prophesied as meager results from sending out a "Cabinet minister" as had come from sending a "hero." They were better pleased with the bold policy that seemed to be inaugurated under the direction of Lord Northbrook in a Khedivial decree of September 18, suspending for six weeks the Law of Liquidation, and directing the mudirs to turn into the Treasury, for the purpose of meeting current expenses and the tribute to Turkey, the revenues assigned to the Caisse de la Dette Publique. The sums thus diverted were applicable to purchases of unified stock in the open market, to which purpose the surplus remaining, after discharging the interest on the privileged and unified debts, and paying off a stated number of privileged bonds, drawn by lot, was devoted by the liquidation act.

The Commissioners of the Caisse began actions in the international courts against the provincial governors, and, at a later period, against Nubar Pasha and the ministers. On September 25 the diplomatic representatives of Germany, Austria, France, and Russia, presented to Nubar Pasha an identical note protesting against the suspension of the sinking fund. Italy joined in the protest later. The Treasury showed at this time a budget deficit of £198,000, or, with the estimated deficit for October, of £231,000, and had no money to pay salaries and other present demands. Germany and Russia presented in December a claim to appoint delegates on the Public Debt Commission, in order to watch over the interests of their subjects. The suits of the Commission of the Caisse against the Government and against the ministers and the mudirs of the assigned provinces, and administrators of railways and customs, individually were decided in favor of the Caisse, condemning the Government to return the moneys illegally collected. In October the ministry ordered the payment of the assigned revenues to be made again to the debt commissioners.

New English Financial Proposals.—The financial scheme reported by Lord Northbrook upon his return from Egypt, proposed that England should guarantee the new loan and should pay the cost of the army of occupation out of the British Treasury, while the interest on the Egyptian debt would remain what it was. This was naturally rejected, as it was directly opposed to the views of the advanced Liberals. In November, with the assistance of Mr. Goschen, new financial proposals were worked out and were laid before the powers, Nov. 29. The essential features of the new proposals were the reduction of the interest of the unified debt by ½ per cent., and the conversion of the Daira loans into unified stock, making the total loan £65,000,000 at 3½ per cent.; the transfer to the privileged debt of the domain loan, and the addition of a new loan of £4,000,000, issued at 110, for the payment of the Alexandria indemnities; making altogether £35,000,000 at 5 per cent.; the reduction of the interest on the Suez Canal shares held by England from 5 to 4½ per cent.; the issue of a loan of £5,000,000 at 3½ per cent. guaranteed by England, and secured on the domain and Daira estates, to be administered by Englishmen; the fixing of the cost of administration at £5,000,000, including the £120,000 for the army of occupation. The surplus of expenditure over and above this sum the English Government undertook to defray out of its own means, unless there should be a residue of revenue. In such case the surplus revenue would be divided *pro rata* to make up the curtailed interest on the unified debt and the cost of military occupation beyond £120,000 a year. No answer whatever had been returned by the powers to the British proposals at the close of the year.

The Battle of Tokar.—After the annihilation of Gen. Hicks's army near El Obeid, Nov. 2, 1883, Baker Pasha, organizer of the gendarmerie that was substituted for the disbanded Egyptian army, was sent by the Egyptian Government to Suakin, to uphold the authority of the Khedive on the coast, relieve the garrisons at Tokar and Sinkat, and keep the Suakin-Berber line of communication open. His army was composed of much the same material as Hicks Pasha's—Arabi's disbanded soldiers, who had no heart in the struggle, and were only ruled by fear. The influence of Osman Digma, the leader of the Nubian insurrection, now extended through all the region from the Nile to the sea. Supplies could be bought from some of the Arab communities, but for fidelity or active assistance none could be relied upon. Baker's army was not quite 4,000 strong, composed of the fellah and negro infantry, and Egyptian and Arab cavalry, a troop of Turkish cavalry, a small body of Italian volunteers, recruited from the Alexandria police force, a small number of Turkish foot-soldiers, and some native Soudanese, recruited in Massowah.

Baker Pasha made a reconnoissance the 21st of January in the direction of Tokar, and succeeded in routing a large body of rebels, slaying several hundred. He delayed his march for another week, then advanced with the main part of his command to Trinkitat in steamers, landing February 1. It was necessary to construct fortifications to protect the landing of the artillery and materials, which arrived and were brought upon dry land, across a marshy shore, on the 3d. The fortified camp was about 2½ miles south of the haven. At dawn on the 4th they set out on the road to Tokar. The Egyptian cavalry headed the column, to support the line of skirmishers. The Turkish troopers brought up the rear, guarding the baggage-train. The artillery, consisting of Krupp and Gatling batteries, was near the front, between the two Egyptian regiments. Six or seven miles out the firing of scouts showed the presence of the enemy. Twice the column halted and fired bombs from the Krupp guns in the direction of the enemy. Suddenly the Nubians appeared on the left flank. Baker ordered the Turkish cavalry to attack. While this movement was carried out, the enemy assailed the front and left wing. Gen. Sartorius was ordered to form the infantry into a square, with the baggage and camels in the middle. Two companies of the Alexandria battalion refused to obey orders. The square was got into shape at length, but was of little avail. The soldiers fired without aiming. Many balls from the right side of the square, which was not attacked at all, struck the soldiers in the front. The Egyptian cavalry on the left, after firing off their carbines in all directions, ran away in mad fright. This started the panic in the infantry. The formation melted into a confused mob. At the spot where the two Alexandria companies stood paralyzed with fear, the Arabs broke through the lines, driving the Egyptians before them. Soldiers, officers, cannons, and camels were crowded together in a helpless jumble. The fellahs either cast themselves wailing upon the ground, where they were mercilessly speared, or threw down their Remingtons and ran. Sartorius Pasha threatened and fired his pistol at the fleeing soldiers, but could get none of them to rally. The blacks, who generally fight with spirit, were as worthless as the fellaheen, excepting the Abyssinians enlisted in Massowah. The Turkish battalion and thirty-six Italian police, with Dr. Leslie, Morris Bey, Capt. Walker, and other English officers, stood manfully by the guns until the last man was slain. Gen. Baker was in front with his staff and a detachment of cavalry. He made a path with his saber through the throng of Arabs, only to find the square broken up and the army rushing in disorderly flight toward the intrenched camp, hotly pursued by the enemy. He hastened back with the force that he had with him and formed a line of Turkish horse in front of the camp to check the pursuit of the Arabs, who, however, drew back of their own accord, probably through fear of shells from British war-ships, though there were none in the harbor. The beaten army continued its flight through the morass to the harbor and crowded into the boats, which would have sunk if the European officers had not driven the men back with their revolvers. In the night, what remained of the army, about 1,500. were embarked and taken back to Suakin. The losses were more than 2,000 men, 3 Krupp and 2 Gatling guns, and 300 camels laden with supplies and munitions. The forces with which Osman Digma destroyed this army, armed with the deadliest modern weapons and trained and officered by Europeans, were estimated at between 1,000 and 2,000. They were armed only with heavy, shovel-headed spears and short, sharp swords. The attack took place at the rising ground near the Wells of Teb, about seven miles from Trinkitat.

English Expedition against Osman Digma.—The destruction of Gen. Baker's army left the Egyptian Government bare of military resources for the suppression of the Soudan rebellion. The British Government, to uphold English prestige, which suffered from the loss of two armies trained and led by Englishmen, to avenge the death of the English officers, to strengthen the hands of Gen. Gordon by a demonstration of military power, and to keep open the Sinkat-Berber line of retreat, dispatched a force, detailed from the army of occupation in Egypt, troops returning from India, and marines serving in the Red Sea and neighboring waters, to hold Suakin and operate against Osman Digma. Rear-Admiral Sir William Hewett, the naval commander-in-chief on the East Indian station, was sent as Governor-General of the eastern Soudan. The land-forces were placed under the command of Maj. Gen. Sir Gerald Graham, a staff-officer of the army of occupation. The small army was not well equipped, lacking a sufficient number of camels to keep up a supply of water and provisions, and having no animals to draw the guns. The cavalry force was also deficient.

Osman Digma, the leader of the rebellion in the eastern Soudan, was the head of a once wealthy family of slave-dealers, which had been impoverished by the suppression of the slave-trade. He lived as a merchant in Berber, visiting various parts of the Soudan to buy merchandise. In July, 1883, he brought letters from the Mahdi to Egyptian officials and Arab sheiks in the Suakin district. He collected a force with which he attacked Sinkat in August, when he was repelled with the loss of eighty men. This nearly destroyed the influence he had gained over the Arab tribes, causing his following to fall away to about seventy-five, until, in October, he almost annihilated two companies under Maj. Mohammed Khilil, in a defile between Suakin and Sinkat. After this his prestige, enhanced afterward by four signal victories, increased until he was the master of all the resources of the country, and commander of a formidable army.

The Surrender of Tokar.—Before Gen. Graham could take the field, he learned that he was too late to relieve Tokar. The town was closely beset by 4,000 Arabs, who kept up a constant artillery and infantry fire. There was no wholesome drinking-water, provisions were poor and scanty, and the ammunition was running low. Fearing the fate of the inhabitants of Sinkat, the people begged the commandant to surrender, a course which only a part of the officers and soldiers opposed. On February 21, the governor, Maccaivi, in accordance with terms agreed upon, delivered up the fort, and the soldiers laid down their arms, except a few who endeavored to escape the night before. The Egyptian soldiers were treated kindly, and many were willing to enter the service of the Mahdi.

The Battle of El Teb.—Before marching against Osman Digma, Gen. Graham sent a message offering terms of surrender, to which no answer was returned. At early morn, on the 29th of February, the troops were called. Under the guidance of Baker Pasha and Col. Burnaby they took the road that was most free from bushes. The way was kept clear of rebel sharpshooters by the cavalry. The route was strewn with the corpses of Baker's Egyptian conscripts. After four hours' march they appeared unexpectedly to the enemy before Osman Digma's breastworks at Teb, a green oasis containing ten large springs of water. The Well of Teb was the place where the English consul, Moncrieff, when advancing with succor to Tokar, was deserted by his Egyptian band on Nov. 2, 1883, and where Baker's army fled in a panic from the Soudanese. It is the only spot between Trinkitat and Tokar where water can be had, and therefore the most important position for an army resisting an advance from

GAKDUL WELLS—THE LOWER WELL.

the sea to hold. The side toward the sea is protected by rolling ground and hills, while near the springs the bush is thicker. The Egyptians who went over to Osman Digma at Tokar improved its defensibility by throwing up two earthworks and a crescent-shaped fort, mounted with four Krupp and three other cannon, captured at Tokar. In the bushes were deep trenches. The British marched in an oblong square, with the Gordon Highlanders in front, and the general and staff, camels, and stores in the middle. There were 3,000 infantry, 750 cavalry, 7 machine-guns, and 8 small field-pieces, a little over 4,000 men altogether. Osman Digma's force was about 6,000. The Soudanese opened the battle at 800 yards with three shells, two of which did some damage, followed by a rattling discharge of musketry. The English battle-square advanced without answering, passing around the north side of the fortifications. Then they opened fire with all their infantry and artillery, and when the Arab fire was quelled, rose from the ground and advanced upon the fortifications from behind. The Soudanese contested the ground valiantly, but their swords and shields, and broad-headed spears, were useless against the hail of bullets. The earthwork was carried by storm. The rebels resisted the impetuous bayonet attack with desperation, yet could not stand out against superior arms, strength, and skill. The Krupp guns were turned against them, and the British troops marched to the assault of the half-moon fort, close by the wells. It was rudely constructed of sand-bags and barrels. Here the Arabs collected for a final resistance. As the British advanced from the north, the breastworks were of no use, but the guns were directed against the foe. The Highlanders stormed the fort and drove the Arabs to retreat, abandoning their tents. The battle lasted three hours. The British losses were 28 killed, 2 missing, and 142 wounded. Of the Soudanese, 900 dead were found within the intrenchments.

The Battle of Tamanieb.—On the 10th of March the British advanced to a place chosen for a fortified camp, eight miles from Suakin. Osman Digma was intrenched in a position six miles from there. On the 13th the British army moved upon the enemy in two broad squares arranged like steps. The front line was formed by half a battalion each from the York and Lancaster regiments, and the Black Watch Highlanders. On the left wing was a Gatling battery, served by marines, and in the center a nine-pound gun. The second square, formed of the first brigade, had a camel battery. Detachments of the enemy soon appeared, and then drew back before the fire of the advancing column. In spite of all warnings, the soldiers shot away their ammunition so freely that they were enveloped in a blinding cloud of smoke, which the Arabs utilized for an attack. Creeping on all-fours under the mouths of the belching cannon and through the rain of bullets, they sprang into the midst of the front ranks, and with their keen-edged swords wrought such carnage that the Englishmen, who were no match for them in hand-to-hand combat, broke and fell back in disorder. The marines were cut off, and after a brave resistance fled, leaving the Gatlings in the hands of the Arabs and breaking up the brigade completely. The Soudanese with a wild yell pursued their advantage, but their rush was stopped for a few minutes by a flank attack of the cavalry. This gave the British just time enough to form in ranks again. In an instant the Arabs were upon them, but could not now break through the line of steel. The square pressed on, fighting step by step, and after two hours of fierce combat, recaptured the machine guns. The second square, about a quarter of a mile removed, had likewise to withstand a furious assault. The Arabs threw themselves with fearless impetuosity against the right flank, yet without forcing back the troops personally commanded by Gen. Graham. The marines shot with admirable coolness, dealing death to all that came within sixty yards. The brigade advanced steadily, marking their road with hundreds of dark-hued corpses. At length they fell in with the Arabs engaged with the second brigade, and by a murderous flanking fire put them to flight. Wherever a band appeared on an eminence, before they had time to attack they were dislodged by sharp-shooters. The rebels began to gather in force on a hill across a deep valley, but were driven away by a steady fire. Before the village of Tamani and the camp of Osman Digma, the Arabs made a final stand. Their resistance was soon broken, and the camp and the three neighboring villages were in the hands of the English. They found bags of money, Korans and talismans, booty of every kind, large stores of grain, and the banner of Osman Digma, as well as that of the unfortunate Tewfik Pasha. The troops burned the villages, rested by the springs of Tamanieb, and then returned to their camp, which they left immediately afterward to return to Suakin.

The Situation at Suakin.—Gen. Graham's Suakin campaign ended with the slaughter of 4,000 or 5,000 Arabs, and the loss of a fifth of his own army, leading to no practical result except the complication of Gen. Gordon's task of pacifying the Soudan. The English ministry would not authorize an advance to Berber, which, in fact, could not have been prepared for before autumn, on account of the heat and lack of water. The English attempted to buy the adherence of the Arab tribes, and thus accomplish their plan of opening communications with Berber. The Hadendowas, however, refused their offers of money. The British forces sailed away, leaving the situation as they had found it. Osman Digma was soon able to take the field again. In April he approached Suakin with a fresh army. English corvettes were sent to keep off an attack, and allay the consternation of the inhabitants, while an Egyptian regiment arrived to man the fortifications. During the summer the Arabs hovered around the town, picking off the Egyptian sentries with their rifles. A company of English engineers was sent later, with a quantity of rails and rolling-stock. The plan of building a railroad to Berber could have been accomplished in a short time and at a slight expense. It was abandoned for the political reason that it would entail the preservation of Egyptian rule in the Soudan. Osman Digma raised the siege of Suakin in September to raid the tribes that were hostile to the Mahdi. When the Mahdi descended upon Khartoum, he returned to the siege. A force of marines was landed about the 1st of December. They constructed *zaribas*, or fortified camps, in the vicinity of the town. The Arabs kept up nightly skirmishes, and the English and Egyptians ventured on cavalry forays, but the rebels were masters of the surrounding country, while the town, under the protection of the ships, was safe from attack.

Treaty with Abyssinia.—At the time when Gordon entered upon his mission, Admiral Hewett was sent on an expedition to Abyssinia with power to secure, by the cession of Egyptian territory, the aid of King John in the removal of the garrisons in the districts near his territory. The treaty concluded with that savage Christian potentate, to which the Khedive unwillingly agreed under English pressure, ceded to him the district of Bogos, and gave him free access to the port of Massowah. King John engaged to send forces to relieve the garrisons at Kassala, Gelahát, Gedari, and Girah, and to facilitate their withdrawal. He promised also to sign a slave-trade treaty with Great Britain.

Massowah and Kassala.—The garrison at Kassala, though reduced to extremities in the early part of the year, was able, later, to obtain provisions. When the Mahdi made a general advance in the autumn, the town was again closely invested. The Abyssinian King was not able, if he was willing, to dispose of a relieving force, though he now promised anew to bring succor. The port of Massowah was held by an English naval force. Mason Bey was appointed governor. The English forces afterward retired from Massowah without attempting to relieve Kassala.

The Berbera Affair.—One of the annexed provinces of Egypt the English betrayed the intention of taking into their immediate possession. Berbera and the other Egyptian settlements on the Somali coast are remote from the Soudan and beyond the influence of the Mahdi. Berbera, before it was improved by Ismail Pasha, was the site of an annual market, where 100,000 people congregated, and where products of Central Africa to the value of $3,000,000 were exchanged for European wares and products of India, Persia, and Arabia. At other times of the year it was a naked strand. Ismail laid out a town, with water-supply, warehouses, and a harbor, surrounded now with blooming gardens, and containing about 10,000 inhabitants. With Berbera, the whole Somali coast, and the rich inland province of Harrar, which contains, besides the nomads, a population of over 2,000,000 souls, would pass into the possession of Great Britain. The rule of the Egyptians was welcomed in these districts, and proved beneficial, for it freed the industrious agricultural and mercantile population, to a great extent, from the black-mail of the wandering tribes. Nevertheless, an English official appeared at Berbera, with three vessels of war, and announced that her Britannic Majesty had determined to take the people under her protection, and release them from the tyranny of the Egyptian administration. He was provided with a petition to that effect, signed by three sheiks. He informed the governor that he was clothed with authority to take over the government and administration in the name of the Queen. The governor refused to acknowledge any commands that did not proceed from the Khedive, asked the English officer if he purposed to take forcible possession of the place while Egypt and England were in a state of peace, and offered, since the British Government could be so easily convinced by petitions, to obtain the signatures of the same three sheiks, and as many more as were wanted, to a declaration of contrary purport. The people of the town assembled when they heard of the purpose of the English visitors, and manifested their indignation in a manner that caused the Englishmen hastily to take their departure. The possession of Berbera and the dependent districts would greatly strengthen the military position of England on the Red Sea, because Aden, which lies immediately opposite, draws all its supplies of food from Berbera. The commercial advantages are not less striking. The commercial products of Harrar are valuable. The climate is cooler than in any other region in this part of Africa. The trade with equatorial Africa through this avenue is already important. Lord Edward Fitzmaurice declared in Parliament that England must acquire Berbera, and said that the British Government had never recognized the sovereignty of the Sultan over this point, forgetting a treaty made with Egypt, September 7, 1877, in which the right of Egypt to the Somali coast was acknowledged. The object of that treaty was to prevent France from establishing one or two settlements on the coast. After the Berbera incident, England obtained a slight footing on the Somali coast at Zeilah by sending 300 soldiers to re-enforce the Egyptian garrison.

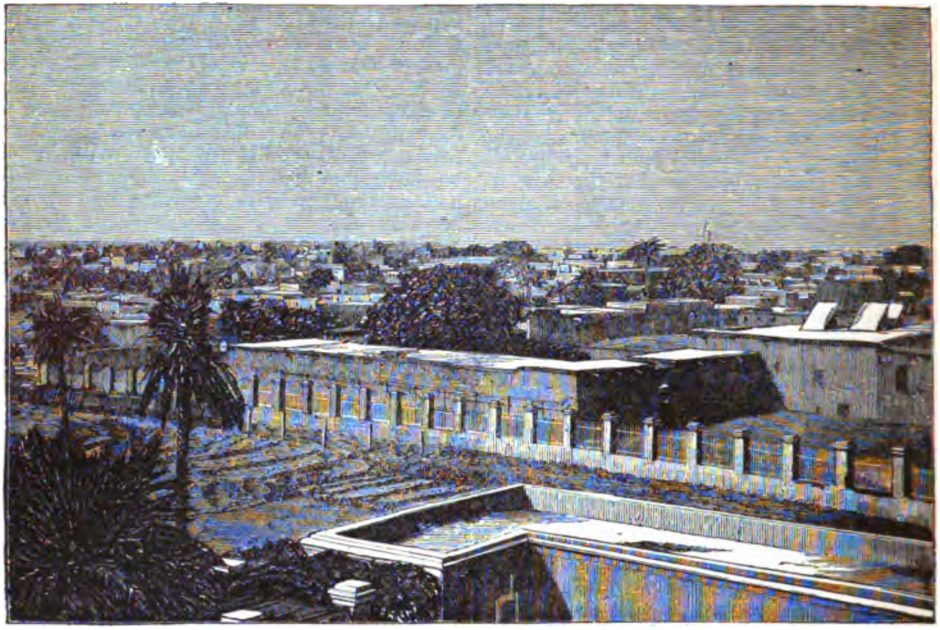
Military Precautions in Upper Egypt.—The "natural frontier" that the British Government proposed for Egypt was guarded only during the first half of the year by a body of 1,500 Bedouin Arabs, recruited by Majors Kitchener and Rundle from the Ababdeh tribe. It was hoped at one time that Major Kitchener could organize an expedition from this material for the relief of Gen. Gordon. It soon became apparent that the only use of paying heavy subsidies to these people was to deter them from open hostilities and depredations. A force of Turks and Albanians was recruited in Levantine ports to supply their place. They proved as useless, and were immediately sent back. Major Stuart Wortley recruited 500 Bedouins from the Tunisian tribe of the Gowast. As soon as English troops began to move up the Nile, they also were disbanded. About 1,000 Egyptian soldiers were posted at Assouan and 800 at Wady Halfa in the summer. The English posted 700 men of the army of occupation above Assiout in the spring, but their presence was resented by the people, and proved rather a source of danger than of protection. English engineer officers were sent to Wady Halfa, who made some progress in the defensive works before the arrival of Lord Wolseley's relief expedition. The English Government, in defining the "natural frontier" at Wady Halfa, assumed that an invading army from the Soudan is restricted to the river route.

Mutiny of Turkish Volunteers.—When the folly of paying money for military service to Bedouins, who would go over to the enemy in the first engagement, became apparent, a force of Turks was hastily recruited in the ports of the Archipelago. When they arrived in Upper Egypt, they told the inhabitants that they would not fight the Arabs, as they were recruited for internal police service. A troop of 200, organized under English officers at Assiout, when ordered to embark for Assouan, mutinied, maltreated Turkish officers who were sent to restore discipline, and attempted to seize the store of arms and ammunition. Forty of them escaped, but were taken after a desperate fight by English soldiers. The whole force was finally sent back to Cairo.

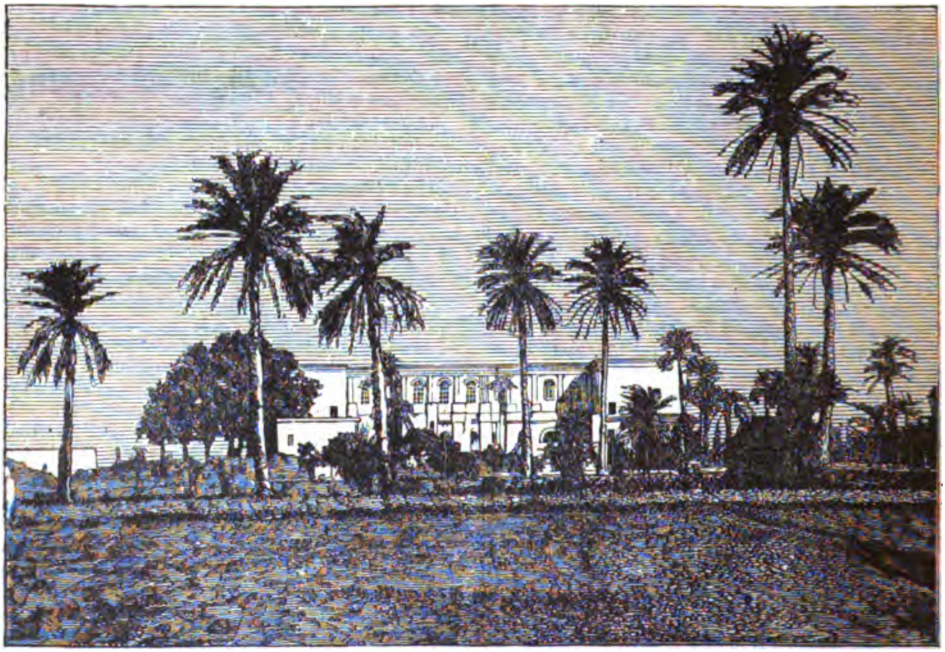
The Fall of Berber.—In April came an appeal from the sheiks, ulemas, and notables of Berber to the central Government at Cairo, begging for immediate relief, and commenting in bitter language on the course of England in encouraging the people to resistance and then leaving them to certain destruction. Soon after came a dispatch from the mudir, Hussein Pasha Khalifa, saying that if the troops in Assouan were ordered to Berber he could hold out until relief could be sent. It was one of a long series of dispatches in which he described the precarious condition of the town, and begged for re-enforcements. At this time the nomad tribes had already declared for the Mahdi, and his emissaries were rapidly winning over the rest of the population. The garrison of the town was not trustworthy. It numbered 2,300, of whom 1,300 were Egyptian soldiers, with two steamers and one gun. The Khedive called a council of statesmen, in and out of service, but they declined to offer advice, because troops and money were both wanting, and, if a plan were resolved upon, it would be altered in character by the English mentors of the Khedive, and its execution intrusted to English hands, with a certainty of failure. The feeling of the people of the province of Said in Upper Egypt, above Assiout, was also discussed. They are a vigorous branch of the fellah race who had refused submission to Arabi, and who would have risen in insurrection against the English, but were dissuaded on the ground that it would prolong the occupation. They were now thrown into a state of excitement by the presence of two British battalions. Shortly afterward, Nubar Pasha sent an answer to the mudir's repeated cries for help, to the effect that if he could not hold the town he should retire with his forces to Dongola. The expectation of relief from Suakin by a column of English troops had already been denied, and the refusal published to the rebels in an unciphered dispatch. The instructions from Cairo were calculated to drive into the arms of the Mahdi the commandant of the town, who belonged to an influential family of Arab chiefs of a tribe that had already declared for the Mahdi. Nevertheless, he held the place until the beginning of June, when an army of 50,000 Arabs surrounded the town and threw up earthworks. After five days of skirmishing, the Arabs, on June 2, stormed the town from the south under cover of a heavy fire from the opposite side. The mudir, who had been prevented from surrendering by his officers, deserted to the enemy with a part of the garrison. The rest of the troops fought bravely, and were massacred after the surrender, with most of the Christian inhabitants.

The Capture of Shendy by the Arabs.—About two months before the reduction of Berber the garrison of Shendy, being short of provisions, was obliged to give in. Some 300 persons attempted to escape by way of the Nile, but fell into the hands of the enemy and were all killed.

The Defense of Dongola.—After the capture of Berber by the rebels, the advance upon Dongola was easy. The governor was suspected of holding a treasonable correspondence with the Mahdi through the family of the latter, which lived in the neighborhood. He resorted to the *ruse* of pretending to embrace the cause of the False Prophet, and induced the Christians to go through the form of adopting Mohammedanism. He sent dispatch after dispatch, begging for re-enforcements, and particularly for arms and ammunition. In May he was instructed to evacuate the town, but refused to obey orders. The Egyptian Government at length sent him rifles and cannon. In the latter part of May and in June he gained various victories over the revolted tribes of the district. His force consisted of 900 infantry and 600 Bashi-Bazouks. When the population south of Debbeh rose they invested that town. The mudir went with a part of his forces to defend the fortress and pacify that part of his district. On June 29 the Arabs,



THE FORT, KHARTOUM.



THE PALACE, KHARTOUM.

said to be 13,000 strong, under the Emir Ahmed el Hoda, attacked the fort, which was held by 500 Bashi-Bazouks. They tried for seventeen hours to storm the position in the face of a rifle and mitrailleuse fire, and then retreated, leaving, it was reported, 3,700 dead. The rebel sheik retired to the Ambukol district, where he gathered his forces in a fortified camp. The mudir marched against this position with two battalions of Bashi-Bazouks, two companies of infantry, two mountain guns, and 4,000 volunteers from the province. A battle was fought in which the Mahdi's emir was beaten and driven out of the province into the Berber district. Afterward a fresh Arab army entered the province, to establish a new emir appointed by the Mahdi. The mudir set out from Debbeh in boats against the rebel force, which had possession of Ambukol, and was encamped outside of Corti. The Egyptian force was about 400, supported by a small gun on a steamer. Ambukol was shelled and taken. The Arabs advanced in a long line and gave battle on an open plain. A part of them broke and fled when the fight began, leaving about 700 to contest the field. Some 150 soldiers of the Mahdi, from Kordofan, fought to the death. About 200 were slain on the field and many more in the retreat. Among the killed were the Arab commander, the Sheik Ahmed el Hedday, the newly appointed Emir of Dongola, and others appointed to Assouan, Cairo, Tripoli, and other places. The mudir pursued the enemy as far as Assli, and then returned to Ambukol. After this battle, which took place September 8, the Mahdi remitted his efforts to gain the province of Dongola, and stir up revolt in Upper Egypt.

General Gordon's Mission to the Soudan.—In January, while about concluding arrangements with the King of the Belgians to take command, in association with H. M. Stanley, of the establishments of the African Association in the Congo valley, Gen. C. G. Gordon, formerly Governor-General of the Soudan (see sketch in "Annual Cyclopædia" for 1883, page 399), received a summons from the British ministry. After a conference with members of the Cabinet, he departed for Khartoum. He was first commissioned to report and advise from Suakin on the best means of evacuating the Soudan, etc. The plan was altered at the suggestion of Sir E. Baring. He had an audience with the Khedive January 26, and was appointed Vali of the Soudan. He had himself suggested that it would strengthen his influence to be nominated Governor-General. He took the route up the Nile, and across the Nubian Desert to Berber, accompanied only by Lieut.-Col. Stewart and six native followers, carrying with him treasure to the amount of £45,000 sterling. The instructions received by Gen. Gordon from the British Government were to effect the withdrawal of the Egyptian garrisons and officials, and of the foreign population of the Soudan, by pacific means, and to take the most effective measures for establishing an organized government in the different provinces, for the maintenance of order and the suppression of revolt. When he arrived at Khartoum, February 18, he was received with joy by the population, who were in a state of consternation, being surrounded by hostile tribes, and in dread of the threatened advance of the Mahdi. Gen. Gordon found that the insurrectionary movement was more general, and the state of feeling in the Soudan graver than he expected. He issued proclamations assuring the people that they should be freed from the tyranny and exactions of the Egyptian officials. He proclaimed the abrogation of certain heavy taxes. One of his earliest proclamations announced that no measures would be taken to interfere with the slave-trade or slavery. He soon became convinced that he could not gain the confidence of the population of the Soudan. He accordingly sent a dispatch to the English Government, asking that his old enemy, Zebehr Pasha, be sent to him as a coadjutor with the appointment of Governor of Khartoum. The proclamation regarding the slave-trade, and the request that its former champion in the Soudan should be called in to aid in establishing a new system of government, provoked contemptuous comments in the Continental press, and a protest from the French Government, and in England aroused such displeasure among the ranks of the Liberals that, had the wish of Gordon been fulfilled, the Government would have been overturned by a vote of censure. This was the consideration that deterred them from adopting the advice of Sir Evelyn Baring, and sending Zebehr to Khartoum. When he heard of the operations undertaken by Gen. Graham, Gordon expostulated with the Government, advising that a proclamation be issued at Suakin, desiring the chiefs of the insurgent tribes to repair to Khartoum and learn from him the plans for delivering the Soudan from oppression. When, against his advice, the Government persisted in military action, after Sinkat and Tokar had already fallen, he believed, as did every one in the Soudan, that British troops would press through to his support, and the relief of the ten beleaguered garrisons in the Soudan. His instructions were to effect a restoration of the petty Sultans who governed the country before Mehemet Ali's conquest, and bring about, if possible, a confederation of those Sultans. The ferment was so great that none of the hereditary rulers listened to his overtures. He was on the point of visiting the Mahdi, but was held back from this perilous adventure by a remonstrance from Sir Evelyn Baring. He proclaimed the Mahdi Sultan of Kordofan. Mohammed Ahmed, however, spurned the appointment, and sent a threatening reply, whereupon Gordon recalled the nomination. Hemmed in at Khartoum, and unable to effect any political combination, he sent word that he must resort to warlike action since peaceful means had failed. The defeat of Osman Digma, and the expectation that an English army was coming, damped the aggressive spirit of the tribes in this part of the Soudan. British inaction now emboldened them. Early in March Gordon was effectually besieged and driven to defensive operations. The rebels prevented any of the dispatches of the Government from reaching him, though he was able to send messages. These bore mostly a complaining and indignant tone. He urged that a simple military demonstration, a cavalry troop rushed through to Berber, or the advance of two hundred English soldiers to Wady Halfa, would suffice to establish his authority and enable him to extricate the garrisons and leave a settled government at Khartoum. When, after slighting all his suggestions with reference to a peaceful solution, the Government then desisted from its own aggressive policy, he concluded that he was deserted, and that the plan of evacuation and the establishment of a settled order in the Soudan, which he was commissioned to carry out, was given up. He wrote on the 16th of April that he would henceforth act for himself, leaving to the Government "the indelible disgrace of sacrificing the garrisons, with the certainty that you will eventually be forced to smash up the Mahdi under greater difficulties." He proposed at one time that, since he could accomplish nothing in the Soudan, he should make his way to the equatorial provinces, and organize governments there. Yet he felt bound to the soldiers and. the people, whose loyalty he had called out, and whose security he had undertaken. In a dispatch of March 8, he said: "It may have been a mistake to send me, but, that having been done, I have no option but to see the evacuation through"; in another, "Even if I were mean enough to escape, I have no power to do so," declaring in the same that he would never be taken alive. In one of his telegrams he appealed to the millionaires of America and England to subscribe £200,000 to pay for a force of 2,000 or 3,000 men, which the Sultan would lend, with which, he said, "we could not only settle our affairs here, but also smash the Mahdi." He was confident of being able to hold Khartoum, which was provisioned for six months, and of strengthening his military position with his steamers when the Nile rose, if only the troops and the town-folk remained loyal. He declared that the people would call in the Mahdi if he had not the Egyptian troops. An action of the 16th of March failed on account of the perfidy of two black officers, and the treacherous pashas were executed. They were the officers in command. Cutting down their own gunners, and opening a passage through the ranks, they enabled 60 Arab horsemen to put to rout 2,000 Bashi-Bazouks. The day before, the relief of Halifa was effected by a steamer and 1,200 men. He repeatedly urged the British authorities to send Zebehr, and to make a military diversion to Berber, or to send Turkish troops. After the 9th of April the town was so closely invested that no more dispatches could be sent out. On the 10th of May the Governor of Dongola reported that the defenders sallied out on the White Nile in a steamer, and that, when they landed to attack the rebels in the wooden sheds they had erected, the latter fled out of gunshot range. A letter dated June 11 came through from Gordon, in which he reported that rebels surrounded him, but said that he could destroy them on the rising of the Nile. A few days later the Mudir of Dongola received from him a letter saying that Khartoum and Sennaar were in a good state of defense, and asking what re-enforcements were coming.

For seven months the town was closely besieged. At the beginning of the siege 8,000 to 10,000 of the inhabitants left the town. General Gordon surrounded his lines with all kinds of obstacles, the most effective of which were three lines of land torpedoes, which inflicted terrible losses on the Soudanese in attacks made on the 16th of April and four succeeding days, and the 6th and 7th of May. On May 7th they were shelled out of their principal position, in a village opposite, but captured some of the outworks in the night, and held them three days. During May and June Saati Bey made expeditions in the armor-plated steamers on the White and Blue Niles, capturing cattle and grain. On the 10th of July that officer was killed in an attack on the village of Gatarneb, when his 200 Egyptian soldiers fled before five Arab spearmen! On July 29th the steamers captured forts on the Blue Nile. Gordon's loss in killed during five months was near 700. From March 17 to the end of July there was fighting every day. The fellahs were worthless, except on the steamers or behind ramparts. The black soldiers were valiant fighters. On the 28th of July Mehemet Ali Pasha led them against the rebel force established on the Blue Nile and put it to flight, killing a large number and capturing arms and ammunition. Besides the armored steamers, barges with turrets were used in the excursions. One of the steamers was captured from Saleh Bey by the Soudanese. General Gordon issued rations to the poor in Khartoum. He emitted paper money for purchases of supplies and the pay of the soldiers, and it passed current among the merchants. By the end of July prices had advanced 3,000 per cent.

The next dispatch received from General Gordon was dated August 26. He declared that he would not leave Khartoum until he achieved the extrication of all the garrisons, but would try and persuade all Europeans to leave, laid the blood of Egyptians who might be slain to the charge of the English Government, and announced that he would surrender the Soudan to the Sultan as soon as a Turkish army arrived. In the same dispatch he announced the departure of an expedition to capture and destroy Berber, and the intended sending of Colonel Stewart and the English consul, Mr. Power, to report to the English Government all that had occurred, and convey his opinions on the situation and the plans to be pursued. The capture of Berber was a manœuvre undertaken for the purpose of opening the river route and enabling them to descend in a steamer to Dongola. With three steamers and four nuggars Berber was shelled, and the rebel fire silenced, enabling them to pass the fort in safety. At Abu Hamed the escort was sent back to Khartoum. Colonel Stewart and the English and French consuls then proceeded with a large party of refugees in a steamer and two nuggars. Overtaken by the rebels, they cut loose the boats. Near the fourth cataract the steamer was wrecked on a rock. The whole party, except two natives, were killed by the Arabs after reaching land. The sheiks offered them hospitality, and then treacherously massacred them.

Gordon, in an answer to some dispatch from Cairo, asking why he did not retire from Khartoum, said, July 31, "I stay at Khartoum because the Arabs have shut us up and will not let us out," declaring: "I repeat, I have no wish to retain this country. My sole desire is to restore the prestige of the Government in order to get out garrisons, and to put some ephemeral government in position in order to get away." The position was critical at this time, for food was running short, and the soldiers were evidently discontented. In the dispatch of August 26, he asked that £300,000 be sent immediately, so that he could give them more satisfactory pay than the paper notes. The remainder of the treasure that Gordon was to take with him into the Soudan, £150,000 in all, was sent after him as far as Berber, where it fell into the hands of the enemy. His situation, through military successes and the capture of provisions, continued to improve after the departure of his ill-fated companions. The rebels soon raised the siege. On the 6th of October Gen. Gordon, with three steamers and eighteen nuggars, bombarded and captured Shendy and Metemneh. Berber and Djalyeen were also taken, and a force was detailed to occupy Berber under the command of Kashmil Mous Pasha. The town was afterward burned. During the first six months of the siege, Gen. Gordon facilitated the escape down the Nile of about 600 soldiers, mostly invalids, and 2,000 officials, merchants, etc., including their families and dependents. The refugees were received at Korosko by Giegler Pasha, and looked after at Assouan by Col. Duncan.

Movements of the Mahdi.—The Mahdi threatened to advance upon Khartoum after the arrival of Gen. Gordon. The time when he could move a large body of troops soon passed by, because he could not take them away from their work in the growing season. He was prevented by formidable rebellions against his power in Kordofan. The many wives that he took to increase his political importance and social influence impaired his sacred renown. He was scoffingly nicknamed the "bridegroom." He had to withstand a conflict with the not numerous but still formidable people of Takale, who never recognized his divine mission. He put to death their former king and their religious chief for that reason. The people proclaimed the next heir king, and swore revenge, while the Mahdi set out in the spring to destroy the Takalese. The head sheik of the Kabbabish, Saleh, was a more powerful adversary. Saleh's brother, the former sheik, was treacherously murdered by Mohammed Ahmed out of jealousy of his influence. This act turned against the Mahdi the most numerous Arab tribe in the Soudan. Saleh bound his right hand to his breast, vowing that he would only unloose it to strike off the Mahdi's head. Mohammed Ahmed made an enemy also of the slave-dealer, Abd-el-Samat, who had in his service several thousand brave soldiers, by demanding tribute from him after promising him immunity from all contributions. Gen. Gordon's successes at high Nile, and the abandonment of the siege by the neighboring tribes, induced the Mahdi to send troops to Khartoum. As soon as the harvest was in, he moved the bulk of his available army, reported to Zebehr Pasha in August as 100,000 strong, with the intention probably of taking Khartoum and then meeting the English army of relief. He left behind only a small force under Mahmoud Abd-el-Kader, in El Obeid. A rising of the Kabbabish Arabs caused him to turn back, when he set out in October. Before the 1st of November he invested Khartoum with a large army. To his demand for a surrender Gen. Gordon replied that he would hold the place twelve years. The neighboring position of Omdurman was taken from Gordon after some fighting. Gen. Gordon was said to have destroyed the greater part of Khartoum, inclosing the remainder in a fort with a high watch-tower, to be making his own powder, and still sending out his steamers on the Blue Nile as far as Sennaar.

The progress of the rebellion was not achieved by the movement of military forces. The Mahdi has no standing army, and makes no assumption of temporal sovereignty. He relies more on proclamations and missionaries than upon the exhibition of power. At first dervishes and emissaries appear singly in a neighborhood. They preach the restoration of Islam in its purity, promise the abolition of illegal taxation, and unfold the object of the movement, which is the expulsion of the foreign rulers. When the people have been worked up by this means, a quantity of arms are sent. Some Arab tribe is found ready to begin overt action and form the nucleus of an insurgent host. When the revolt is in full progress a lieutenant of the Mahdi comes with arms and ammunition, takes command, and develops an army and a plan of action.

TOWING WHALE-BOATS THROUGH THE FIRST GATE OF THE SECOND CATARACT.

Gen. Wolseley's Expedition.—The English ministers in their course toward Gen. Gordon were guided by the political and financial reasons that impelled them to force upon the Egyptian Government the policy of abandoning the Soudan. They were inclined at first to repudiate their envoy, on the ground that, in establishing military rule at Khartoum and undertaking military operations, he had exceeded his instructions, which directed him to use pacific means only. When they first called Gen. Gordon into consultation he expostulated against the abandonment of Khartoum as injurious to Egypt, to commerce, and to the anti-slavery cause. They assumed that he was now aiming at the restoration of Egyptian authority in the Soudan, or that that would be the result of his successful defense of Khartoum. They would have been glad for him to retreat, but he refused to leave to their fate the 60,000 people whom he was sent to rescue. Every one but the Government recognized the necessity of Gordon's defensive operations, and the perils of his situation. His defense of Khartoum, coupled with the belief that he was backed by the military power of England, was of great service in arresting the tide of rebellion, which threatened to sweep into Egypt. The Government was nevertheless averse to an expedition for his relief, because if English blood and treasure were spent in the Soudan the policy of abandoning the country might have to be given up, and the English protectorate in Egypt might be indefinitely prolonged. The apathy shown regarding the fate of Gordon subjected the Government to telling attacks from the Opposition and wide-spread popular displeasure, not confined to the friends of annexation. At length Mr. Gladstone acknowledged an obligation to look after the safety of Gen. Gordon, and of those who had incurred greater danger by attaching themselves to him, while disclaiming any responsibility for the other Egyptian posts in the Soudan, or any intention to resist the rebellion of the Mahdi, which he described as the movement of "a people rightly struggling to be free." On April 28 a dispatch was forwarded to Gen. Gordon by a variety of channels, in which he was desired to advise as to the time, route, and strength of a relief expedition. Not receiving an answer before the adjournment of Parliament, Mr. Gladstone asked, August 5, for a vote of credit of £300,000 in approval of an expedition in the autumn. A relief expedition was arranged the same month on plans drawn up by Lord Wolseley. Although all authorities on Egyptian topography pronounced the Suakin-Berber route the quickest and easiest to Khartoum, the Government would sanction none but the Nile route, as most in harmony with their purpose to confine their operations to the rescue of Gen. Gordon and those involved with him. Gen. Wolseley suggested small boats for river transport beyond Wady Halfa, such as he had employed in his Red river expedition in Canada. As Gen. Stephenson, commanding the army of occupation, objected to this scheme, Lord Wolseley was asked to take command of the expedition himself, and decided on an expeditionary force of 10,000 men as sufficient for his purpose. He arrived in Egypt September 9. The small boats were built in England and Egypt, and a body of 500 Canadian boatmen and 300 Kroomen from the west coast of Africa engaged. In his letter of instructions, dated October 8, the object of the expedition was stated to be to bring Gen. Gordon and Col. Stewart away from Khartoum. Unless it was necessary for him to penetrate to Khartoum for this purpose, he was not to advance beyond Dongola. That was the sole definite object, though with regard to leaving an organized government behind, Gen. Wolseley was instructed to enter into treaty with the local chiefs, and to promise them liberal subsidies from the Egyptian Government if they would engage to preserve order, and keep down the slave-trade between Wady Halfa and Khartoum. He was prohibited from advancing beyond Khartoum for any purpose, even for the relief of the garrison at Sennaar, which was within easy access on the Nile. The boats, 800 in number, were light enough to be carried around the rapids, and designed to convey each ten soldiers with food-supplies for 100 days. Stern-paddle steamers, made in sections, were ordered for towage in the clear spaces of the river. Sir Evelyn Wood proceeded to Wady Halfa to superintend the preparations for transport and the collection of stores. It would have been possible at high Nile to draw steamers of not over five feet draught over the cataracts. One steamer, the Nassif-Kheir, was got through with great difficulty in the beginning of September. It was high water about the middle of August. Before the transports, commissariat stores, etc., were prepared in Lord Wolseley's thorough manner, the Nile had fallen so that the elaborate arrangements for river-transport were almost useless. The general-in-chief arrived at the second cataract October 5. The passage up the river from Sarras, where the Canadian double-bowed whale-boats were put into the water, and Dongola, was slow and toilsome. Nile nuggars were found as useful at least as the small boats. On the 20th of November, with 16,000 British troops in Egypt, there were only 3,000 south of Wady Halfa, of whom about 1,000 had reached Dongola. By December 10 there were 10,000 south of Korosko; on the 16th Lord Wolseley joined the advance body under Brig.-Gen. Sir Herbert Stewart at Korti. Here Gen. Wolseley decided to abandon the river route and cross the Bahiuda Desert to Shendy, 180 miles. Gen. Stewart started with 1,000 men on camels December 30. He occupied the wells at Gadkul, 97 miles from Korti, January 3, and, leaving the guards intrenched there, returned for re-enforcements and supplies, setting out again on the 8th with a corps of all arms. On the 10th of January Col. Burnaby left Korti with a supply of corn for Stewart's detachment. Another column was sent up the river to Abou Hamed, for the purpose of opening the route across the Nubian Desert from Korosko, or the Berber route from Suakin, for the transport of supplies and re-enforcements. Gen. Wolseley's force at Korti when he divided it into three detachments was probably not over 5,000 men, as half of his army was still struggling against the eddies of the middle cataracts. On the 20th of January, 1885, came the disheartening intelligence that Gen. Stewart's column had sustained an attack of the enemy in greatly superior numbers at Abu Klea Wells, losing, out of about 1,500 men, 4 field officers, 5 line officers, and 65 rank and file killed, and 9 officers and 85 rank and file wounded. Among the killed was the dashing and experienced Col. Burnaby. Sir Herbert Stewart was wounded. The column stood its ground, formed in a single square, which was assailed on all sides, and finally repelled the Arabs. A day or two later the intelligence came that Gen. Stewart had continued his advance and took up a position at Gubat, near Metemneh, opposite Shendy. He was supported here by a detachment sent by Gen. Gordon in his steamers. Col. Sir Charles Wilson embarked in a steamer for Khartoum. When he arrived there he was fired upon from the works, and soon convinced himself that the city had been taken by the Mahdi. On his return his steamer was wrecked below the Shublaka Cataract, and the party stranded on an island. From native accounts it appeared probable that the Mahdi introduced emissaries into the town who worked upon the religious feelings of the soldiers, that the enemy were admitted by one Faraz Pasha, the officer of the day, that 7,500 of the garrison deserted to the enemy, leaving 2,500 faithful to Gen. Gordon, and that these fought desperately until overwhelmed. Most accounts agreed that Gen. Gordon was killed.

EGYPT, EXPLORATIONS IN. (See ARCHÆOLOGY.)

ELECTRICAL EXHIBITION AT PHILADELPHIA. This exhibition, which was opened Sept. 2, 1884, under the auspices of the Franklin Institute in Philadelphia, illustrates the advancement of electrical science and its growing importance in the mind of the scientist, as well as its practical applications in domestic economy. Where these great buildings stand to-day, Benjamin Franklin, one hundred and thirty years ago, sailed his famous kite, and from the clouds drew the spark that kindled the New and the Old World with enthusiasm. After the inaugural ceremonies, the machinery was set in motion, the great central fountain spouted up, and the air was filled with the sound of innumerable electric bells and the peal of the electric organ. This exhibition can scarcely be called international, except by courtesy, for the foreign exhibits did not amount to 2 per cent., while the exhibits from New York State alone amounted to 80 per cent. Only ten years before, Prof. Tyndall, during one of his lectures, exhibited a curiosity in the form of an arc-lamp. The carbons were fed by clockwork; but, besides the fact that it required two or three days to set up and charge the battery, the mechanism was so clumsy that the lamp would fail once or twice during a lecture. At this exhibition, twelve engines of the combined capacity of 1,800 horse-power ran the dynamos that brilliantly illuminated the grounds and buildings, giving in the aggregate 1,500,000 candle-power. The two forms of lamps in practical use are the arc and the incandescent. The source of light in an arc-lamp is in the stream of incandescent particles carried by the electric current from the positive to the negative pole across an interval necessary to complete the circuit. The source of light in an incandescent lamp resides in some resisting medium, as carbon, introduced into the circuit. To prevent the destruction of this carbon, it must be inclosed in a vacuum.

Arc-Lamps.—The exterior illumination was made by arc-lamps of the Brush Company; the great lamp on the tower was said to be of 100,000 candle-power. There were exhibited arc-lamps manufactured by the Brush, the United States, Fuller, Maxim, Thompson-Houston, Gérard, Van Depoel, and Western Companies. The difference between these various lamps is simply a difference of mechanism for moving the positive carbon-rod so as to keep the distance between the points of the carbon-rods constant, and consequently the arc of the same length and the light steady. All these lamps show much perfection in mechanism, and produce, as a rule, very steady lights. There were arc-lamps mounted in numerous ways for various purposes; among them, a search-light, to be used on shipboard, attracted a great deal of attention. The arc was formed in the focus of a parabolic reflector, which could be turned around a vertical axis, its intense brilliancy giving great penetrating power in fogs. Another arc-lamp was constructed as a head-light for locomotives, and furnished with a current supplied by a small dynamo in the cab, run by a rotary steam-engine. The mechanism of this lamp was remarkably perfect, as was necessary to give a steady light on a locomotive running at full speed. In the department of arc-lighting, a lamp involving a new idea was exhibited; unlike the ordinary lamp, the negative carbon, which wears away by what is known as reflex action, is replaced by a point of iridium set in a wrought-iron rod and protected from the heat of the current. Iridium is practically infusible, even in the intense heat of the arc. A carbon is fed to this iridium-point through a tube by two grooved rollers worked by magnets. This mechanism enables the lamp to burn in any position, which is an advance upon other lamps. Some specimens of zircon, which may be substituted for iridium in this lamp, were exhibited. This mineral is found in large quantities in Henderson Co., N. C., where it was first brought to light, and then thought to be worthless. Since it has exhibited the remarkable property of being infusible, it can be used instead of the more expensive metal, iridium.

The enormous lamp on the top of the tower had an arc that leaped three quarters of an inch, the carbon-rods being also three quarters of an inch in diameter. Most of the arc-lamps in and around the building were surrounded by opal or ground-glass globes, for the purpose of diffusing the light. The arc-lamps that illuminated the fountain were so arranged that sheets of colored glass could be interposed, in this way coloring the fountain and producing many beautiful effects. The principal lighting within the building was also done by arc-lamps, they being strung along each of the high arches supporting the roof. The illumination throughout the building was as brilliant as sunlight.

Incandescent Lamps.—The little incandescent lamps, 5,600 in number, which were strung everywhere, were manufactured by Swan, Maxim, Gérard, Edison, Weston, and Bernstein. Edison showed about 1,000, arranged spirally on a cylinder twenty feet high, some surrounded by white and others by colored bulbs, making a most beautiful effect. To the casual glance they are all much alike, having in common a filament of carbon bent in various shapes and clamped to leading wires, which are of platinum, as they pass through the glass bulb that incloses the filament, in which a high vacuum is produced. The point in which the incandescent lamps differ one from another is in the material composing the filament, and in its shape. This little filament has many enemies, the most formidable of which is called molecular carriage; that is, the carbon-particles are carried from the positive side of the loop to the negative, causing the filament to waste gradually until it breaks, and the lamp is destroyed. The various materials used in the different incandescent lamps are valuable in proportion to their power of resisting this molecular carriage. Edison, after a long series of experiments, decided in favor of a natural fiber, and, of all the hundreds of fibers that he tried, a certain species of bamboo found in China proved the best. The process by which the fibers are carbonized differs with each patentee. Edison cuts the strips of his bamboo four inches long by one eighth of an inch wide, by one sixty-fourth of an inch thick. This strip he bends in loop-shape around a mold. While it is carbonizing, he keeps it in place by weights that allow it to contract. Several of these loops are placed in a plumbago mold and exposed to intense heat for about four hours; when taken out, each carbon-loop is clamped to the leading wires and sealed in a glass bulb from which the air is exhausted. On the Swan lamp, used by the Brush Company in the United States, ordinary cotton-thread is employed, to which solidity is given by plunging it into sulphuric acid diluted with one third its volume of water. This "parchmentizes" the cellulose of the thread, making it homogeneous. The prepared thread, bent into a horseshoe-shape with a spiral in the middle, is carbonized by placing it in carbon-dust and raising to orange heat. The lamp is completed by inclosing the loop in a transparent glass globe in which a vacuum is produced. This lamp gives sixteen to twenty candle-power (an ordinary kerosene-burner gives five to six candle-power). The electrical resistance of this lamp is about forty ohms, while Edison's is 140.

Hiram S. Maxim's lamp has the general features of those described above, except that the filament used is stamped from a flat sheet of paper, in the shape of a letter M, and carbonized between sheets of thin paper in iron molds, and afterward treated to render it as homogeneous as possible, which is effected by heating the filament to incandescence in a carbonaceous atmosphere. The gas is decomposed by the heat of the incandescent filament, on which the liberated carbon is deposited. The thinnest parts become most heated and decompose the greatest amount of gas, and consequently receive the heaviest deposit. This tends to build up the carbon evenly, which is the great object in making the filament.

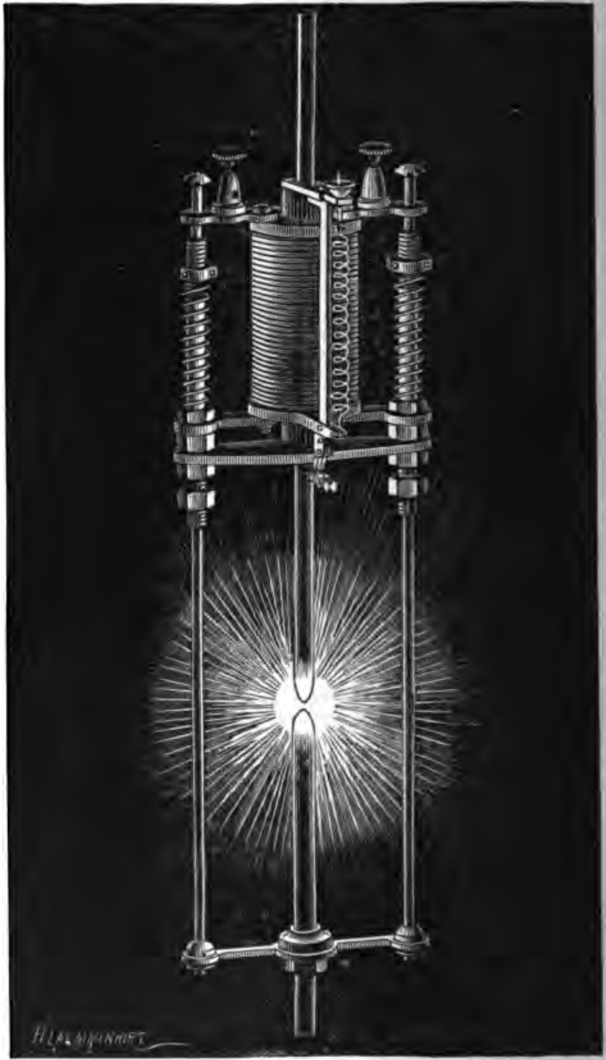
The incandescent lamps covered by the Weston patents were exhibited in great profusion at the exposition. The carbon of these lamps has a zigzag shape, and is made from cellulose by a process not yet made public. The resulting material is, before carbonizing, a translucent, elastic substance, and produces an exceedingly strong, metallic-looking carbon, capable of resisting very high temperatures for a long time. The Weston Company also exhibited an incandescent lamp of one hundred candle-power. It did not differ from their regular lamp in any particular, except that it was of a larger size, the loop being about six inches long.

The Bernstein lamp also appeared among the exhibits. The carbons of this lamp are tubular and bent into the form of a loop. They are made by carbonizing a finely woven cotton or silk fabric. The Gérard lamp's filament consisted of two fine carbon rods having the leading wires cemented to one end of each rod. The two other ends are cemented together. This is burned in a vacuum and looks like the letter V, when the lamp is hanging downward. A miniature lamp for dental and surgical operations was exhibited. This is only half an inch long, and has a carbon-loop of paper.

The currents used for incandescent lamps are usually of lower electro-motive force than are used in the arc-lamp. The lamps in all systems are connected in multiple arc, and any number can be burned on one circuit. About twenty-four incandescent lamps were fed by the Brush storage-battery. Each gave a steady, soft light of about fourteen candle-power.

Dynamos.—Numerous dynamos were exhibited, embodying improvements in construction, in winding the armature, and in the arrangement of the field-magnets, all covered by patents issued to Weston, Maxim, Edison, Houston-Thomson, Brush, Wallace, Van Depoel, Bernstein, Ball, and Daft. All have in common an armature whose foundation is wrought-iron, with coils wound parallel to the axis of rotation, and mounted so as to be revolved in an intense magnetic field. As the copper wires, during the revolution, cut the lines of magnetic force, an electric current is produced.

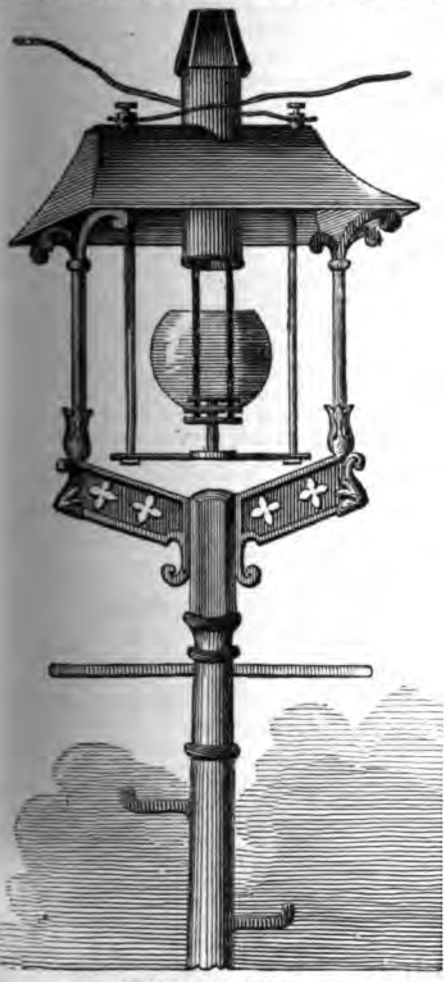
Among the modern improvements exhibited in connection with this point was a regulator attached to the Houston-Thomson dynamo; the brushes that collect the current from the commutator are attached to a yoke pivoted on an axis; a lever from this yoke bears an armature at the end that faces near the pole of a large magnet, which is magnetized by the current from the dynamo. When the current is above the average, the magnets are strong enough to pull the brushes around the commutator, and away from the point where they would collect the largest amount of electricity, and this tends to bring the current back to the normal. When the current is less than the normal, the magnet is weaker, and the brushes approach the point on the commutator where the maximum amount of current is given off. This regulator always tends to bring the current back to the normal, and is exceedingly sensitive. Judging from the lamps burning on that circuit, the current must be remarkably steady. The generating armature is globular, and the copper wires are wound in three coils around a great circle, intersecting each other with an angle of 38°. The ends of these coils are connected to six commutator strips on which the movable brushes rest. The commutator revolves in a magnetic field produced between two cylinders, wound so that the two concave ends between which the globular armature revolves are the north and south poles. When the copper wire in the armature cuts the south pole, it produces there a negative current, and at the same time the wire on the other side of the armature is cutting the north pole and producing positive electricity. Instead of having one armature for both kinds of electricity, Ball's unipolar machine had an armature for each kind of electricity, one rotating in a magnetic field of north polarity, and the other on the same shaft, rotating in a field of south polarity. Wallace's exhibits were especially interesting from an historical point of view. His old machines, made in 1861, which were the first dynamos made in this country, have permanent magnets and a great clumsy armature. The evolution of the present dynamo from that is only one of perfection in mechanical details; the principle underlying the machine has always been the same. Edison in his large dynamo replaces the copper wires with a strip of copper, which reduces the internal resistance, a very important factor in large plants. The dynamo is the most economical



GÉRARD LAMP.

transformer of energy we have, being thirty-eight times more efficient than the boiler, and six times more efficient than the steam-engine.

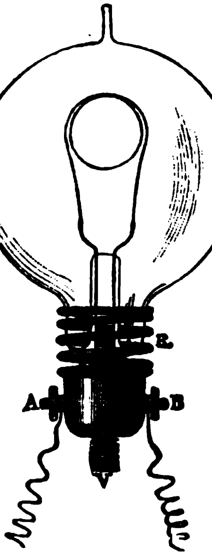
Storage-Batteries. — The storage-batteries attracted a great deal of attention, principally because of the late improvements, which seemed to give promise of practical use in the economical storage of power. This, however, is not true. A storage-battery gives only about 40 per cent. of the power put into it, and the lead plates of which the battery is built soon disintegrate, and the battery becomes useless. The most important of these batteries was one exhibited by the Brush Company. It consists of twenty-one cells, each of which is composed of three plates of cast-lead, the central one being an oxygen plate, and those on either side hydrogen. The plates measure sixteen by sixteen inches, and the two outer ones are connected, while the middle plate is connected with the outside plate of the next cell; so the hydrogen and oxygen plates alternate. This is known as "connecting in series." The action within the cell while storing electricity is chemical. It causes one atom of PbO_2, with which the positive or hydrogen plate is coated, to pass over to the negative lead plate, there producing PbO. This renders both plates alike. Other chemical actions take place; but this transference of the oxygen-atom from the peroxide to the lead is the essential action. This, however, occurs in the presence of sulphuric acid, which unites with the newly formed oxide of lead, producing the sulphate of lead in a white film, insoluble in the dilute acid. We have chemically the following changes: $Pb + PbO_2$ becomes $PbO + PbO$, and then $PbO + H_2SO_4$ becomes $PbSO_4 + H_2O$. This is the chemical action that takes place when discharging; and when there is no trace of electricity flowing from the terminals the battery is in its original condition. Several motors for sewing-machines were run by the batteries manufactured by the Brush Company, and a room in this exhibition was lighted very satisfactorily with currents supplied by these batteries.



BRUSH STREET-LAMP.

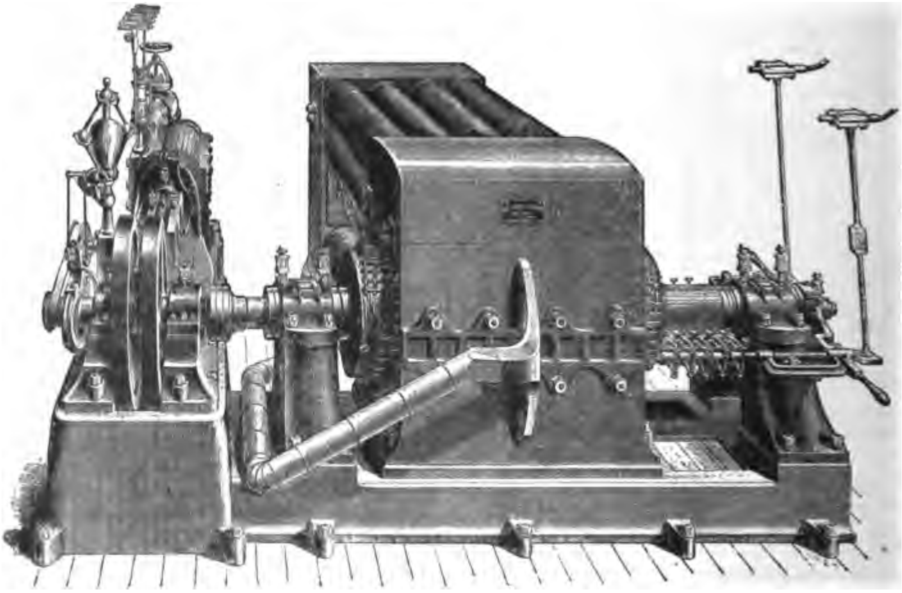
Since the dynamo is a reversible machine—that is, instead of power being applied to the pulley to develop electricity, electricity may be sent through the armature to cause it to rotate and give out power—several motors were exhibited, varying from one hundredth of a horse-power up to six horse-power. Mr. Daft exhibited a motor with a Siemens armature. The speed of the armature's shaft was reduced by an endless screw working into a cog-wheel. On the shaft with this cog-wheel was mounted a pulley, and this ran the printing-press that printed the "Electrical World." One of the motors used for sewing-machines was invented by Mr. Diehls, of the Singer Company. The speed of revolution of the armature is here reduced by a new device. Instead of introducing resistance into the circuit, as with every other motor, the north and south poles of the electro-magnets that act on the armature are made to separate by a lever worked by the feet. This increases the distance between the poles and the armature, and consequently decreases the magnetic effect on the armature, the speed being proportional to this effect. The Cleveland motor is simply a small dynamo. On the same shaft with the armature is a grooved pulley, which is belted to the little wheel on a sewing-machine. This is started by pressing on a pedal. The harder you press, the faster the motor goes, for it is connected with a switch that cuts out resistance in the main current. It is stopped instantaneously by releasing the pedal. It is said that it can produce one half more work in a day when the electric motor is substituted for foot-power.

Telephones.—The Bell telephone exhibit was historically very interesting. The original apparatus of Bell, when compared with that of Dolbear and Ries, showed in a surprising way what is called the simultaneousness of invention. The rough experimental apparatus of Bell looks absurdly clumsy when placed beside that which experience has shown to be the most convenient form. The different forms of apparatus exhibited by Bell show a gradual growth from the primitive conception of the principle to the present commercial form. In the same space with the Bell exhibit a switch-board was shown, which is capable of connecting any one of the 3,000 subscribers on that board to any other one. Magneto call-bells, exhibited by this same company, are simply small dynamos, the armature of which is turned by the hand. This replaces the battery formerly used, which requires frequent attention, and easily gets out of order.



SWAN LAMP IN SOCKET.

The microphone is also exhibited in this section. But the most interesting instrument to be seen here is Prof. Bell's radiophone. This has been recently improved by the discovery that selenium is not the only substance in which electric resistance is changed when acted on by an intermittent ray of light, but that other substances, and some to a much greater degree, are thus affected. The material that he found gave the most marked variations was carbon. An experimental demonstration of this quality was given by means of an apparatus that translated the vibrations of an intermittent ray of light into the corresponding sound-vibrations. A plate of glass is covered with silver-foil, and this divided into two parts by removing the foil along a sinuous line running across the plate, the whole being coated with a film of lampblack. Each half of the foil is then connected with one pole of a battery. In the circuit, at some convenient place, Mr. Bell inserted one of his receiving telephones. This done, the lampblacked surface was exposed to an intermittent ray of light. At the telephone a note could be distinctly heard corresponding in pitch to the number of vibrations of the light-ray. A practical application of the principle involved was effected by adding another step to these already demonstrated. Instead of allowing an ordinary ray of intermittent light to fall upon the lampblacked surface, a mirror is pivoted with a rigid arm, which is placed in contact with a diaphragm of a transmitting telephone in such a way that every movement of the dia-



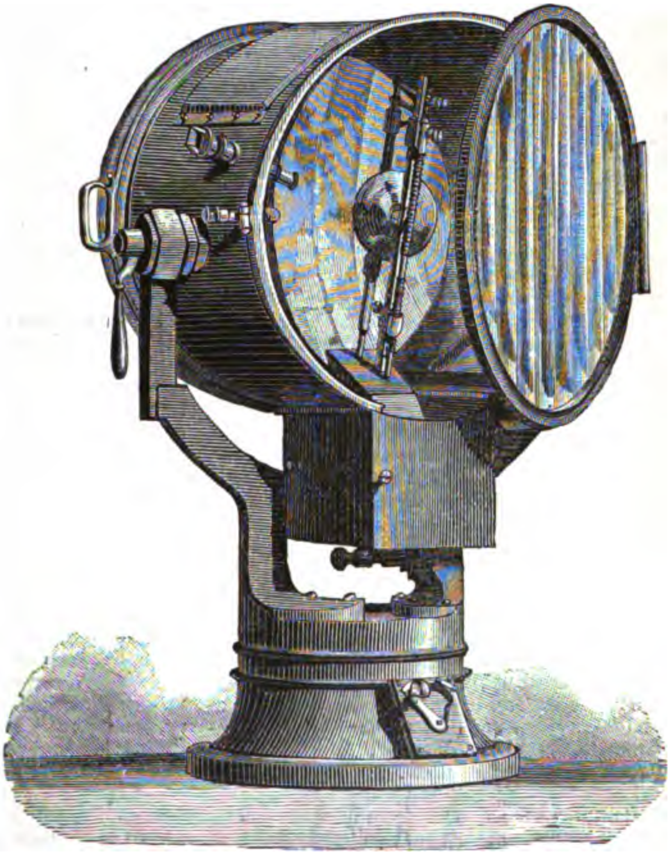
EDISON'S STEAM DYNAMO.

phragm will cause the mirror to move, and consequently the ray of light to be intermittent upon the lampblack. Words spoken into the telephone are first translated into light-vibrations, and these are retranslated into sound—a device that manifestly may be made use of in war-times.

Alarms.—Numerous devices for detecting the burglar were exhibited, one of which was a matting to be placed under the carpet or on the floor, inside doors and windows. At night, after the electric current is switched on, a step upon the matting will cause the ringing of the electric bell. Great numbers of annunciators for hotels were also exhibited. An ingenious arrangement for indicating time was shown. The apparatus was meant to be used in telephone exchanges, and was so arranged that every five minutes it would signal the correct time indicated by a clock in the central station, to every subscriber to that exchange.

Cables and Wires. — The cable and insulated wire exhibited by the Callender Company were especially fine. The new compound used by them seems in all respects to rival gutta-percha, allowing them to produce cables of high insulation at a greatly reduced cost. The phosphor-bronze wire, also to be seen in this exhibit, deserves notice, since it is coming rapidly into general use. Wires of this metal, besides having greater tensile strength, weigh about one eighth as much as iron wire of the same electrical resistance. This admits of great economy of poles, both in size and number.

The problem of underground conductors has been forced upon inventors suddenly, by the decision that within city limits wires must be buried. This problem is by no means simple, where the telegraph is concerned. It is not so hard to do this where speed may be sacrificed. The efficiency of the telephone is impaired when its wires lie near those of a working telegraph. It was found in one instance in France, when a telephone cable ran parallel with a telegraph cable for half a mile, separated at the nearest point by about 100 yards, that the telegraph message could be distinctly heard in the telephone receiver.



MANGIN PROJECTOR.

Synchronous Telegraphy.—This was one of the novel things at the exhibition, and attracted a great deal of attention. The claims for this invention were received with incredulity; but, as the exhibit shows twenty-four instruments telegraphing at once through one wire, the fact must be accepted as proved. This result is effected by taking advantage of the fact that, for an appreciable though very short time, a piece of wrought-iron retains its magnetism after the current that has produced it stops flowing in the helix around the wrought-iron core, and consequently it holds the armature for a moment. During this moment, a revolving contact has made and broken eleven other connections, and come back to the same line again, before the armature has been released. This contact-wheel makes about thirty contacts a second with the same wire. The receiving is identical with the transmitting instrument, the wheels carrying the revolving contacts moving synchronously at both ends of the line. This movement is regulated by two tuning-forks of the same pitch, the wheels going through the same arc during each swing of the tuning-forks. Its effect is to make and break each one of the twelve circuits in one thirtieth of a second, this time not being sufficient to allow the armature of each receiving instrument to be affected. This is the product of the inventive genius of P. B. Delany.

Electric Railway.—A crowd was always gathered about the electric railway, which was in full operation on a track about 400 feet long, between the main building and the annex. The line is too short to admit of a test for economy. It deserves attention from its novelty of design and easy management. The radical difference between this system and others now in practical working, in different parts of the world, is not such as to give the one at the electrical exhibition any economic advantage. It consists of a new method of conducting the electricity from the point of generation to the locomotor. In the system exhibited at the Electrical Exhibition, the conductor is composed of insulated tubes placed near to and parallel with each rail on which the locomotor runs. One of these tubes is connected with the positive and the other with the negative pole of the dynamo used as a generator. In a slot under the bottom of each tube, glides, as the locomotor advances, a contact-rod leading to the motor, and this connects it electrically with the generating dynamo. This arrangement, it is claimed, will give a nearly perfect contact in bad weather.

A switch and signal system, to be used on ordinary railroads, showed promise of practical value, though the invention possessed no new or peculiar electrical features. It was a combination of electrical annunciators and bells with a system of pneumatic tubes, working pistons in cylinders to close and open switches, and display signals. The mechanism is ingenious, but scarcely belongs to the department of electricity, though a model railroad, showing the working of this system, occupied much room in the exhibition.

Miscellaneous.—There were many other exhibits, which can not be here mentioned in detail, for want of space, and because, though closely related, they do not actually belong to electrical science and were merely auxiliary, or else did not differ radically from instruments already familiar—such as a mercury vacuum-pump exhibited by Weston; Brackett's dynamometer; Ayrton and Perry's volt-, Am-, and ohm-meters; Elliott's well-known electrical instruments; a new form of magnetometer; Mangin's projector for throwing a beam of light from an electric lamp in any desired direction; new gas-engines; balanced locomotive to show the effect of cushioning the piston; and Siemens's regenerative gas-burner. Among the exhibits was a torpedo-boat about twelve feet long, which could be steered from the shore and made to reach any point not more than four miles distant. In shape the torpedo was like a cigar, sharp at both ends. It was steered by means of electro-magnets, so arranged as to throw the rudder either one way or the other as the current was reversed. In the back part of the torpedo were three conductors inclosed in one insulator and forming a small light cable four miles in length, wound upon a bobbin. This cable played out as the torpedo advanced. The propeller was revolved by an electric motor, which could also be managed from the shore; the current supplying the motor was furnished by batteries on shore. The torpedo is ballasted so as to be almost entirely submerged; a little guide—which by night is a dark-lantern facing toward shore, and by day a red buoy—alone appearing above water. At the forward end of the torpedo is the conical dynamite cartridge, the part containing the fulminate cap being forward. When this point strikes any obstruction, it explodes the dynamite.

There were exhibited, in a room adjacent to the large lecture-room, a great number of Patent-Office models of electrical apparatus. These were loaned by the Patent Commissioner, and formed a most valuable exhibit. A number of magneto-thermo panaceas were admitted to the exhibition, probably in consequence of a misnomer, since they should properly be classified under the head of "faith-cures" rather than of electrical phenomena, for to generate a current of electricity was wholly out of their province. The exhibition closed on Oct. 11, 1884; the daily average attendance was 8,407, and it was a financial success.

ELSSLER, FANNY, *danseuse*, was born in Vienna, June 23, 1810; died Nov. 27, 1884. She made her *début* in the ballet corps at the age of six, gave great promise, and was instructed by the celebrated Aumar. Her education was continued under the direction of Baron Frédéric de Gentz, and in 1827, with her sister Thérèse, who was two years her senior, she appeared on the stage at Naples. In 1830 they appeared at Berlin, where they met a most enthusiastic reception, and Fanny especially found a host of admirers and lovers among the wealthy and noble. The triumph was repeated in Vienna, and in 1834 the sisters made their first appearance in Paris, in a ballet adapted from Shakespeare's "Tempest" by Nourrit. Here the furor reached its height. Taglioni was then at the head of the profession, but the popular verdict was that Fanny Elssler surpassed her, especially in the Spanish *cachuca*. The most famous critics exhausted their powers of eulogy on the new *danseuse*, and a millionaire offered her his hand. M. Brissault drew her portrait in these words: "An inimitable delicacy, grace, exact and ingenious discernment, agility, a coquetry always active, always ardent, the art of fascination, a sensual intelligence reflected from the whole organization, in short, a delicious affectation—these are the characteristics of Fanny Elssler. Her person is in keeping with her talent. Her form is tall and slender, her features fine and animated, with a sprightly and alluring expression; her aspect mild and endearing, saying all without boldness. Her very defects attract one the more; her frail appearance is, as it were, a witness of the hidden fires that burn within. Fanny dances to subdue and to charm, Taglioni shows us the dance of heaven; Fanny Elssler wins the love of mortals: if the one is a sister of the angels, the other is the most adorable of the daughters of earth."

In 1841 the sisters came to the United States, where their fame had preceded them. Enthusiastic crowds detached the horses and drew their carriage through the streets, the theatre was crowded night after night, and like many other European performers they reaped a golden harvest in America. Afterward they visited Russia, and finally danced again in Vienna, where they bade farewell to the stage. Thérèse became the morganatic wife of Prince Adalbert of Prussia in 1851, and died in 1878. She was tall and powerful, was popularly called "the majestic," and was to a large extent Fanny's instructor. At the same time that the elder sister married, Fanny retired with her large fortune to a villa near Hamburg, where she passed most of the remainder of her life.

FANNY ELSSLER.

ENGINEERING. In consequence of the general depression of all branches of industry, few large works were planned, either in this country or abroad, during 1884, nor have any of the great enterprises begun years ago been brought to completion. But work is steadily going on in many quarters, carrying forward such undertakings as the Panama Canal. The engineering world has not been startled by any great discoveries, though it has continued to make good progress in the improvement of details in methods and appliances, and in the most effective use of materials. Concerning the latter, the growing tendency in favor of steel for structural purposes may be particularly noted. The metallurgist, the chemist, and the engineer are working harmoniously and successfully in defining the adaptability of that material to specific purposes, in increasing our stock of knowledge as to its characteristics, and the best methods of handling and shaping it. It is gradually but surely replacing iron, notably for bridge-work and in naval architecture, a steady lowering of the price going hand in hand with greater uniformity and reliability in quality.

Enlargement of the Suez Canal.—The enlargement of the Suez Canal was definitely decided upon during 1884, after long-continued negotiations and a report by the International Consultative Commission. Until now, only small vessels could pass one another in motion, the depth near the banks being too small for larger ships. The latter have been forced to enter one of the "gares" provided at intervals, a system that greatly retarded navigation. The engineers of the canal have based their estimates of the needed width to secure uninterrupted sailing, upon the fact that the largest ship, the Austral, that has yet passed through the canal, has a forty-eight-foot beam and is 456 feet long. They assume that if vessels of such size are to pass one another in motion there should be a space equal to two clear beams between them, and an interval of thirty to thirty-five feet between their outer sides and the line of buoys. This means a channel about 230 feet broad at the bottom, which is considered sufficient for the straight reach of the canal south of Port Said. For the curves and for the Suez end, where the tide of the Red Sea produces a current, an increased breadth of 262 feet is proposed, which would permit of a partial rectification of the curves. It is urged that such a width, giving a minimum channel of 115 feet for each vessel, instead of the seventy-foot width of course now insisted upon, would be ample, since the bed of the Clyde is only 220 feet broad, and still vessels pass one another in motion without serious trouble. By this enlargement of the canal, an increase in the speed to 6¼ knots an hour is believed to be readily attainable, and it has been estimated that the saving in the time taken to pass through the canal, when it is enlarged, will be about twenty-four hours. The cost of a channel twenty-seven feet deep has been estimated at £9,850,000, a sum that would be increased to £10,881,000 if the depth is increased to thirty feet. During the past two years work has been progressing in the direction of widening the channel in the small lakes in the Kabret section, and some important work, to diminish the number of accidents by stranding, has been completed. The carrying out of the programme of these improvements will absorb the greater part of the year 1885.

The Forth Railway Bridge.—Work on the great Forth bridge, which was begun in January, 1883, by Messrs. Tancred, Arrol & Co., who took the contract for £1,600,000, has been thus far directed chiefly to the building of the three main piers—known respectively as the Fife pier, the Inch-Garvie pier, and the Queen's-ferry pier—upon each of which is to be built a huge cantilever stretching both ways. The total length of the bridge is about a mile and a half, including two 1,700-foot spans, two 675-foot spans, the shoreward halves of the outer cantilevers, fifteen 168-foot spans, and five 25-foot spans. The clear headway under the center of the bridge is 150 feet above high water. The Fife pier, which stands between high and low water mark, like the other main piers, comprises four columns carried down to the rock, of which three are completed, while the fourth is in progress. At the Inch-Garvie pier, which is partly founded upon a rocky island in mid-stream, one of the columns is complete and one is building, while at the Queen's-ferry pier, which is at the edge of the deep channel, the work on the caissons is advancing. The latter are seventy feet in diameter at the bottom edge, have a double skin, and are stiffened with girders, which are subject to a heavy stress, owing to the fact that the range of the tide is fully twenty feet. These pneumatic caissons are provided with special facilities for landing material. In the case of one of the columns of the Queen's-ferry pier, the full depth to which the caisson is to be sunk is not less than ninety-six feet below high water. When in place, the caissons are filled with concrete up to low-water mark, above which cylindrical masonry piers, fifty-five feet in diameter at the bottom and thirty-six feet high, are carried up, forty-eight heavy steel bolts being provided to hold down the bed-plates and the superstructure of the main spans. The whole work is on a magnificent scale, and has thus far been carried out with much skill. It is expected that it will take five or six years more to complete the bridge.

One of the leading features in the design of the superstructure is the tubular struts of hitherto unequaled length, of which nearly six miles will be required in the completed bridge. Some of them are as much as twelve feet in diameter. As no machinery was in existence to deal with such work, a special plant was designed, which has been described by Andrew S. Biggart in a paper read before the Institution of Engineers and Shipbuilders of Scotland. It includes a heavy hydraulic press for bending the steel plates when hot, which weigh as much as a ton and a half apiece, and planing and drilling machines of special size.

The Isthmus of Corinth Canal.—According to the recent report to the Isthmus of Corinth Canal Company, by M. Bazaine, 1,300,000 cubic metres of earth had been removed at the close of 1884, leaving about 8,000,000 cubic metres to be dealt with. There has been delay in the building of the workmen's houses, the erection of workshops, the providing of water-supply, the construction of the railroad across the isthmus, and in the delivery of the two large dredges, which, it is believed, will be able to handle 10,000 cubic metres a day. M. Bazaine says that thus far the difficulties have not been great on the Corinth side, but adds that it is possible that the favorable conditions may not continue. At the Kalamaki end, however, the outlook is by no means so promising. A good deal of hard conglomerate has been met with, necessitating an almost constant employment of dynamite.

The Tehuantepec Ship-Railroad.—The Isthmus of Tehuantepec lies immediately north of the Isthmus of Yucatan, is the narrowest part of Mexico, and furnishes the most northerly of the three routes proposed for joining the Atlantic and Pacific Oceans—the Panama, the Nicaragua, and Tehuantepec. The latter possesses the advantage of affording the most direct course from China, Japan, Australia, New Zealand, California, and the whole Pacific coast of North America, to New York and Europe. The following table of distances will show the lengths of a few of the principal maritime courses by different routes:

ROUTES.	Total distance.	Excess over Tehuantepec route.
New York to Hong-Kong	Miles.	Miles.
via Cape Horn	20,379	8,777
Cape of Good Hope	16,945	5,343
Suez Canal	13,596	1,994
Panama Railroad	12,953	1,351
Isthmus of Tehuantepec	11,602	....
New York to Melbourne		
via Cape Horn	15,215	4,150
Suez Canal	15,171	4,106
Cape of Good Hope	15,019	3,954
Panama Railroad	11,826	761
Isthmus of Tehuantepec	11,065	....
New York to San Francisco		
via Cape Horn	15,687	10,797
Panama Railroad	6,068	1,178
Isthmus of Tehuantepec	4,890	....
Liverpool to Hong-Kong		
via Cape Horn	20,606	5,353
Panama Railroad	16,471	1,218
Cape of Good Hope	15,722	469
Isthmus of Tehuantepec	15,253	....
Liverpool to Auckland, New Zealand		
via Cape of Good Hope	16,221	3,419
Suez Canal	16,645	1,836
Cape Horn	13,897	1,088
Panama Railroad	13,312	503
Isthmus of Tehuantepec	12,809	....
Liverpool to San Francisco		
via Cape Horn	15,803	7,527
Panama Railroad	8,885	609
Isthmus of Tehuantepec	8,276	....

The ground has been frequently surveyed, with the idea of cutting a canal; notably in

1774 by Don Augustin Cramer, in 1824 by Don Tadeo Ortiz and Don Juan de Orbegoso, in 1842 and 1843 by Señor Moro, and in 1852 by J. J. Williams on the part of the Tehuantepec Railway of New Orleans. James B. Eads became interested in the subject, and has designed a ship-railway, the plans of which, now that their features are better understood, are generally admitted to be quite practicable. Mr. Eads has obtained a very favorable concession. He proposes to raise vessels out of the sea, place them on carriages, transport them over a ship-railroad across the isthmus, and place them in the water at the end of the journey. The ships will enter Coatzacoalcos river, which flows into the Gulf of Mexico, and ascend twenty-five miles from its mouth to the town of Minatitlan, the Coatzacoalcos river being a broad stream, which will require improvement at only one point. At its mouth there is a bar, which will be scoured in the same way by jetties as those at the mouth of the Mississippi. At Minatitlan the railroad begins ascending the Atlantic plains for thirty-five miles by an easy grade of forty-two feet to the mile. It then enters a gently undulating table-land, from which it passes by a series of broad valleys to the summit level, the Tarifa plains, 726 feet above the sea. The descent from this point to the Pacific plains has a uniform grade of one in a hundred, and requires three deflecting turn-tables. From the base of the hills to the Pacific end the line extends over a nearly level country. The station is to be either at Salina Cruz or at one of the lagoons.

The details of the plans for transferring the vessels from the water to the railroad have been worked out with a great deal of ingenuity. The general principles underlying are the following, stripped of technical detail: The vessel is run into a narrow dock, one of the ends of which is open to the stream, while the other faces the end of the railroad-track. Under the vessel, when in position, is a submerged pontoon, which can be raised or lowered by pumping water out of or into it. On the pontoon, which has tracks of the same gauge as that of the railroad-track, is a carriage. When the vessel is in position, the water is pumped out of the pontoon until the carriage approaches the keel of the ship, when, by an automatic arrangement, the vessel is so seated on keel-blocks that its weight is uniformly distributed over the whole length and breadth of the carriage. Pumping is then resumed, until the rails on the pontoon stand flush with those of the railroad, when the carriage, with the ship on it, can be drawn on the shore and started on its trip across the isthmus, to be lowered into the water at the other end by means of a second pontoon.

The Shoring of Chestnut-Street Bridge over the Schuylkill.—One of the most interesting and novel pieces of work partially carried out during 1884 was the shoring of Chestnut Street bridge, over the Schuylkill, in Philadelphia. The bridge was completed in 1865, has two 185-foot arch-spans, and with its approaches is 1,528½ feet long. The foundations of the western abutment were white-oak piles, driven through twenty-seven feet of silt down to a five foot layer of gravel and bowlders, covering the bed-rock. The heads of the piles were imbedded in *béton* to a depth of 2½ feet, upon which was laid a platform on which the masonry was erected. The thrust of the long, flat arch forced the whole western abutment through the yielding material on which it rested, and though temporary relief was sought by placing wooden struts at water-line from the abutment to the arch pier, and from the pier to the base of the approach, it was decided to seek other means of saving the bridge from destruction. The abutment had moved eight inches, and the central pier four inches, and the problem was to arrest any further movement without disturbing the traffic of the railroad that was running under one of the approach arches, or endangering the stability of the abutment. The ingenious plans of Messrs. Anderson and Barr were adopted, which consisted in building four iron 8-foot cylinders, resting upon the bed-rock, and extending upward at an angle of 45° through the silt to the abutment, into the base of which they were stepped. These cylinders were to be filled with cement as soon as sunk, in order to render them solid supports of the abutment, and take up the thrust of the arch. The length of two of the four underground struts completed in 1884 was 65 and 62 feet. The cylinders are sunk with the aid of compressed air, by digging out a space large enough to admit of placing one plate, which is then bolted on to those already in position. Thus, plate by plate, and ring by ring, is got into place, until the cylinder reaches bed-rock, when the work of laying the concrete begins. The concrete used is a mixture of one part of cement, two parts of sand, and four parts of broken stone. Communication between the interior of the cylinder and the outer air is effected by means of an air-lock fourteen feet long and five feet wide, divided into three compartments. The electric light is used for the work in the cylinder.

The Nicaragua Canal.—The discussion of the treaty proposed between the United States and Nicaragua has directed attention to the projected canal, which has always been a favorite one with our government engineers, who during the past thirty years have made elaborate and conflicting reports in reference to it. While the treaty has been defeated, the Government has sent another expedition to Nicaragua, under the direction of A. G. Menocal, of the navy, to make a resurvey of the location, on which the estimates of former surveys may be revised and verified. The cost has been variously estimated at $75,000,000 and $140,000,000, the latter figure being that of Major Walter McFarland, in his reports to the United States Interoceanic Canal Commission, dated Nov. 18, 1874, and Jan. 12, 1875. The total length of the canal would be 172 miles, of which 119 miles would be furnished by lakes and rivers, in which there is already sufficient depth of water, or in which such depth can be obtained easily. This utilization of existing water-ways is one of the great advantages of the canal, and it has the additional advantage of being about 800 miles farther north than the Panama route. Its disadvantages are, that the passage would require at least three days, and that there would be fifteen locks, the failure or injury of any one of which would obstruct the entire line. Another great disadvantage would be, that the harbor of Greytown, or San Juan del Norte, on the Atlantic end, is irretrievably ruined. Major McFarland believes that the only method by which an artificial harbor can be formed at that point, which may be expected to be permanently valuable for canal purposes, is to carry the canal boldly out through the harbor to the sea, into thirty feet of water, and by constructing outside of it, at a convenient distance from its extremity, a detached breakwater, so situated as to form a deep-water harbor behind it. The construction of an adequate harbor at the Pacific terminus, at Brito, would also involve a very large expenditure, because there is only a slight indentation of the shore-line at that point. From Greytown to San Carlos there would be 42 miles of canal, followed by 63 miles of slack-water navigation, secured by dams, on San Juan river, which would bring the navigation to Lake Nicaragua. Then it is proposed to cut channels from either shore to the 28-foot curve, the cut in the soft material to be protected by a combination of ordinary and sheet piling. The level of Lake Nicaragua, at its highest stage—the summit level of the canal—is 107 feet above mean tide in either ocean. Between the lake and the Pacific side, two routes have been proposed. O. W. Childs, in his survey in 1857, chose the route by the Rio Lajas, because the highest point of it is only 49 feet above the level of Lake Nicaragua. Commander Lull, and Major McFarland after him, pronounced in favor of the Rio del Medio route, although the summit is 134 feet above the level of the lake; because, although the cutting would be deeper, the line would be straighter and shorter, because deep water would be found nearer its lake terminus, and because the crossing of many troublesome streams would be avoided. While it is generally admitted by engineers that the route of the Nicaragua Canal is practicable, a far more searching investigation of details must be made before any reasonably approximate estimate of its cost can be made.

The New Croton Aqueduct.—The question of an adequate increase in the water-supply for the city of New York has attracted a good deal of attention, and several plans have been proposed. After a thorough study, it has been decided that the Croton river water-shed affords more than enough for any demand likely to be made upon it for a long time to come, its area being 338 square miles, on which the annual rainfall is over 46 inches. Making allowance for evaporation, absorption, and leakage, this would supply daily about 425,000,000 gallons of water, while, with the present population, the carrying capacity of the old aqueduct is about 100,000,000 gallons a day. As yet no decision has been reached as to the best means of collecting and storing the possible supply of the future, but the weight of expert evidence is in favor of building an enormous dam, 200 feet high at its highest point, at Quaker Bridge. Such a dam, while it would cost fully $4,000,000, would increase the area of Croton Lake to 3.625 acres, and elevate its surface about 34 feet above the present level. At a rate of consumption of 200,000,000 gallons of water, it would take 160 days to exhaust the quantity for which storage-room would be thus provided. While the details of the construction of this dam have not yet been determined on, work has begun with the building of a new aqueduct from Croton Lake to Harlem river. Substantially this aqueduct is to be a tunnel, lined with masonry, 26½ miles long, with an average grade of 0·7 foot per mile. Thirty-three shafts of an average depth of 101 feet afford access to the working levels and a means for the removal of *débris*. At five points—notably in crossing Pocantico river and Sawmill river—the aqueduct emerges from under ground and is carried along in open cut. For the tunnel-work, two sections have been adopted, dependent upon local circumstances. The first is a horseshoe arch, with invert bottom, having a total height in the clear of 13·53 feet and a width of 13·60 feet, lined with 12 inches of masonry. The second form is that of a true circle, ranging from 14 feet in diameter in the clear, with 16 inches of masonry, to 10·5 feet, with 12 inches of masonry. The reason for this variation is, that it is proposed to divert a certain amount of water carried by the aqueduct into storage-reservoirs in the vicinity of Woodlawn Cemetery, to supply the "annexed district." For the smaller quantity flowing beyond this point, a smaller conduit, having a diameter of 12·25 feet, is sufficient till Harlem river is reached, which is crossed by an inverted siphon. Through the sudden change in the grade, the water in the tunnel would receive a dangerous acceleration, and, to diminish the shocks, the friction of the flow of the water is increased by decreasing the diameter to 10·5 feet. By these variations in the diameter of the tunnel, the passage of a uniform quantity of water at a controllable speed is secured. In passing through difficult ground, the greatest care is taken to guard the tunnel against any collapse, and to resist the percolation of water through the brick-work with the aid of a water-proof plaster. In order to prevent the entry into the aqueduct of water that is under pressure, and thus obtain the additional supply of many springs tapped by the tunnel, small square openings are provided at intervals in the masonry linings. These openings are called "weepers." All springs tapped, which are not under sufficient pressure to add to the volume of water flowing through it, are collected in a drain carried along under the masonry to points along the tunnel where the water can be got rid of, since it would otherwise wash away the backing of the masonry. These points are called "blow-offs," or "waste-weirs," and serve also the important function of permitting the emptying of a section for repairs, etc., without discharging the water from the entire length of the aqueduct. The points selected for these waste-weirs depend, of course, on the topography. At the selected point, the aqueduct merges into a rectangular chamber of two stories, the upper being entirely above the crown of the tunnel arch. The width of this chamber about corresponds to the maximum diameter of the tunnel. Alongside of this two-story chamber is a second one of similar description, which communicates with the first by four gates reaching from the top to the bottom of the chamber, and each of which is independent of the others. A breast-wall, in the second chamber, over which the escaping water flows when any of the four gates are opened, can be raised at will by the use of planks sliding in grooves, so that the level of the overflow may be varied, or the water may be entirely discharged by opening gates in the breast-wall. In the first chamber is built a pier of masonry, to serve as an abutment for massive gates, which may be lowered, and by closing similar gates at the farther end of the tunnel structure, the portion of the aqueduct between them may be emptied without drawing any water from any of the other sections along its length. In order to reach the tunnel level for purposes of excavation and working during construction, there is provision for thirty-three shafts. Some of these, when the tunnel is completed, will be under pressure of a head of water for a part or the whole of their depth; in others the water will rise only a little, if at all, above the crown of the tunnel arch. The former are lined with a greater thickness of masonry and at convenient points brick arches are thrown across the shaft, and heavy-ribbed iron plates are provided to prevent the escape of water. At several points in the shaft it is widened to give standing-room for the men when examining and cleaning. In order to allow of the escape of air imprisoned under pressure when the aqueduct is filled after having been emptied, there is an air-pipe leading up through the shaft, fitted with a valve. There are also drain-valves to allow the water in the shaft to escape into the aqueduct when the latter is being emptied, thus enabling access to be had to it through the shaft. Those shafts that are not under water-pressure, in which the water would not rise above the crown of the aqueduct tunnel, are simply carefully lined with masonry braced by arches, and are allowed to remain open. They too are provided with weepers to let in the water of any springs that may be tapped.

Panama Canal.—The management of the Panama Canal enterprise continues to be the object of very sharp criticisms, often bearing on their face the bias of the objectors. These strictures are met with uniformly roseate accounts of progress, on the part of the projectors of the canal, which, from their character, do not inspire unlimited confidence. It is a difficult matter, with such wilde differences not only in opinions, but in statements of fact, to represent accurately the present status of the enterprise, or to forecast its near future. M. de Lesseps, at the meeting of the company on the 23d of July, 1884, assured the stockholders emphatically, and he has since reasserted it, that the canal will be opened to navigation before the close of the year 1888. He said then that careful study had revealed the fact that the amount of work to be done is smaller than was estimated, the natural basin of the Chagres river in its upper part being much greater than was at first believed. On the other hand, American engineers that have visited the works have reported, with singular unanimity, that, at the present rate of progress, the predictions of the projectors can not be fulfilled, and they all agree in pronouncing the estimates of cost far below the sums that will be required. Charles Colné, Secretary of the American Committee of the Universal Interoceanic Panama Canal Company, in a paper read before the Franklin Institute, Philadelphia, says the excavations necessary to complete the canal will be, for cutting the canal and the ports proper, 143,000,000 cubic yards, and for the lateral cuts 13,000,000 cubic yards, a total of 156,000,000 cubic yards, of which 52,000,000 will be excavated by dredges, and the remainder is dry excavation of earth and rock. Of this work, 10,224,882 cubic yards had been completed up to Sept. 1, 1884. It is urged that, now that a good deal of the expensive and slow preliminary work has been accomplished, the excavation will progress much more rapidly. The following figures are submitted to show the fallacy of the argument that, because only a fraction of the work has been done thus far, it will take a correspondingly long period, at that rate, to finish it. In the first four years, previous to Jan. 1, 1884, 3,610,778 cubic yards had been excavated, while in the first eight months of 1884 the quantity excavated had been 6,614,104 cubic yards.

The African Interior Sea.—It does not seem that the death of Col. Roudaire, the originator of the scheme for an inland African sea, will lead to its abandonment. A party of engineers and hydrographers, under the direction of Commandant Landes, of the Saint Cyr Military Academy, have gone to Tunisia, with the object of finishing the surveys for the creation of a port in the Gabes Bay at the mouth of the Oued-Melah river. Into this river it is proposed to carry the canal that is to establish connection between the Mediterranean and the "*chotts.*"

The Washington Aqueduct.—With the object of increasing the water-supply of the city of Washington, extensive improvements are being made, which consist, first, in the extension of the Washington Aqueduct by a tunnel 20,715·8 feet long; second, the completion of a dam over the Great Falls, entirely across the Potomac; third, the construction of a new distributing reservoir in a valley east of Howard University; fourth, the laying of cast-iron mains, 75 and 48 inches in diameter, from the new reservoir to the heart of distribution. The tunnel, it is estimated, will cost $548,100. Work was begun in 1888, by sinking four shafts along the line of the tunnel, their depth being respectively 69, 58½, 187¼, and 162 feet. With the object of obtaining the necessary fuel-supply cheaply, the plant is placed on the Chesapeake and Ohio Canal. This involves long lines of pipe. It is believed the tunnel will be completed at the close of 1886.

The Suakim-Berber Pipe-Line and Railroad.—The Soudan conflict has forced the English Government to undertake a work that will be followed with considerable interest by engineers. Some idea of the magnitude of this undertaking in the face of an enemy may be gathered from the following description of the character of country and its water-supply: From Suakim, on the Red Sea, the foot-hills are reached at the wells of Hondouk, 9 miles, and the mountains are entered at the O-Taou wells, 15 miles. About 20 miles from Suakim, and at an altitude of 1,000 feet, the small valley of the Sinkat is reached, where are the wells of Hambouk. Twelve miles farther is the divide between the Sinkat and O-Mareg valleys, which would oppose various obstacles to rapid railroad-building. Then for 25 to 30 miles the route lies through small valleys, passing the Disibil wells, and about 60 miles from Suakim a short but steep and narrow pass, the summit of the line, 8,000 feet high, is reached, between Wady Ahmed and Wady Haratree. This pass would present the greatest obstacles to railroad-building. After attaining the valley of the Haratree, the first large wells, those of Tamai and Salalaat, 62 and 75 miles from Suakim, are reached. At 87 miles from Suakim is a steep, winding pass, which leads into Wady Kokreeb, followed by 80 miles of barren plains to Wady Ariab, 118 miles from Suakim. The military road is to be built to this point. Beyond it the first wells are at O-Bark, 54 miles, and from the latter to the Nile, 68 miles, there is no water. As a preliminary undertaking, a pipe-line to furnish the water-supply has been projected. It is to consist of two lines of 4-inch mains, with pumping-stations at intervals of 25 to 80 miles.

EVANGELICAL ALLIANCE. The Eighth General Conference of the Evangelical Alliance met in Copenhagen, Denmark, September 1st. Thirteen hundred and eighty delegates were in attendance, of whom more than 900 were from Denmark, upward of 200 from Sweden, 22 from Norway, 91 from Great Britain, 56 from Germany, 10 from France, 15 from Switzerland, 10 from Holland, a considerable number from the United States and Canada, and small delegations from Belgium, Italy, Spain, Austria, Greece, and Russia. Four of the bishops of the State Church were present at the opening session. A preliminary meeting was held on the evening of August 80th, in the great hall of the University, at which the Rev. Dr. Kalkar, of Copenhagen, presided and delivered an opening address. To this responses were made by representative delegates from the National Evangelical Alliances of different countries, of whom the Lord Mayor of London spoke for the British Alliance, and the Rev. Dr. John Hall for the United States. The hymns were sung in the English, Danish, and German languages, each delegate using the one most familiar to him, at the same time.

At the opening of the regular sessions of the Conference, Monday, September 1st, reports were made on the state of religion in Denmark, by Dean Vahl; in Sweden, by Pastor Osberg; and in Finland, by Prof. Rabergh. These reports were interpreted at a sectional meeting of the English-speaking delegates, held in the afternoon. At this sectional meeting, the following resolution, in recognition of services given by a former King of Denmark to a Christian missionary enterprise, was unanimously adopted:

> *Resolved*, That this meeting of the English and American sections of the Evangelical Alliance, assembled in Copenhagen, and consisting of Christian brethren of various denominations of the Christian Church in Great Britain and America, desire to take the earliest opportunity permitted them of expressing the gratitude they feel to Frederick IV, ancestor of the present King of Denmark, for his gracious interposition on behalf of the Christian mission of Great Britain in Hindostan. They can not forget the eminent services of such men as Ziegenbalg and Schwartz in southern India, who were the first to introduce the gospel into that vast dependency of Great Britain; but they desire especially to signalize the generous service, rendered with the sanction of his sovereign, by the representative of the Danish Crown, at Serampore, in the province of Bengal, when, by the action of the East India Company, the missionaries of the Baptist Missionary Society were threatened with deportation from the country. On that occasion protection was given to the persecuted missionaries, and, in the face of threats from the Indian Government, the Governor of Serampore, General Bie, persisted in shielding the missionaries, who had taken refuge under the Danish flag, from further persecution, and in giving opportunity for the planting of the gospel in India, which has now, under more auspicious circumstances, attained to vast and increasing magnitude. The Christians of Great Britain, and of all lands, can not but remember with the deepest gratitude the services thus rendered by the Crown of Denmark, and beg to express their profoundest wishes and prayers for the prosperity and progress of the Danish monarchy and people under the reign of its present gracious sovereign, to whose family the Crown of Great Britain and its people are so closely allied.

At the closing general session a resolution was recorded, that "the Evangelical Alliance, while reserving its opinion regarding the methods adopted by the Salvation Army in promoting their evangelistic work, protests against the violations of religious liberty which have taken place on the occasions of certain meetings of the Salvation Army in Switzerland."

Complaints of interference by French priests with the Protestant missions in Madagascar were referred to the French and British branches of the Alliance for such action as should seem proper. Memorials sent in by some Danish pastors concerning the restrictions under which they were suffering from the authorities of the State Church of Schleswig-Holstein, now a part of Prussia, were referred to the officers of the North-German branch. A protest that the Evangelical Alliance had adopted at its session in Basle against the opium-traffic was renewed and referred to the British branch.

Papers were read and addresses made during the sessions, on "Christian Life in Relation to Domestic and Social Comfort," by the Rev. J. McCullough, ex-President of the Wesleyan Conference; "The Power of Prayer," by the Rev. W. F. Watkins, D. D., of New York; the "Scientific Training of the Clergy by the Universities of Scandinavia," by Prof. Scharling, of Copenhagen; "The Discord and Concord of Christendom," by the Rev. Philip Schaff, D. D., of New York; "Our Duties and our Hopes as Christians," by Pasteur M. Monod, of Paris; "The Religious Indifference existing among Various Classes and the Best Means of Meeting it," by Prof. Christlieb, of Bonn, and Dr. Marshall Lang, of Glasgow; "Christian Methods of dealing with Modern Social Problems," by Prof. Redford, of London; "The Divinity and Atonement-Work of our Lord essential to Christian Faith," by the Rev. William Arthur, of England; "Modern Unbelief and the Best Means of Counteracting it," by Dr. Sinclair Patterson, of London; "The Basis and Authority of the New Testament Scriptures," by Prof. Godet, of Neufchâtel; "Primitive Christian Simplicity," by Dr. Fabbri, of Germany, and Prof. Myrberg, of Sweden; "The Harmony of Science and Revelation," by Prebendary Anderson, of Bath, England, and the Rev. Dr. E. R. Conder, of Leeds, England; "Liberal Giving in Support of the Work of the Lord," by the Rev. R. S. Ashton, of London; "The Sailor's Mission," by Pastor Storjohrnn; "Charitable Work in South Germany and Austria," by Pastor Kotschy; "Christian Responsibility in regard to the Prevailing Immorality," by Pastor Holck and the Rev. Dr. Dalton, of St. Petersburg; "Sunday-Schools," by Mr. F. J. Hartley, of England; "The Duty of the Church in Relation to Foreign Missions," by the Rev. D. M. Mitchell, of Scotland; "Christian Literature as a Missionary Agency," by the Rev. Dr. White, of the Religious Tract Society; "The Lord's Day, its Place and Power," by the Rev. Dr. Gritton, of London; "Missions to the Jews," by Pastor de le Roi, of Germany; "Missions in Dutch Colonies," by Dr. Van Ryn, of Holland; "The Baptism of the Holy Ghost," by the Rev. Dr. Clemance, of London; "The Work of the Alliance," by the Rev. Dr. Kalkar; together with reports of the state of religion in France, Switzerland, Norway, Germany, Italy, and Greece. Single sessions of the Conference were attended by members of the royal family, including the King and Queen of Denmark, the King and Queen of Greece, and the Crown Prince and Princess of Denmark. The time and place of holding the next General Conference will be determined by the officers of the various branches of the Alliance, who are expected to meet hereafter regularly every other year for executive work.

The British Branch.—At the Annual Conference of the British Branch of the Alliance, held October 28th, the Secretary reported a considerable increase of members, and the formation of new branches at Pekin, China, and at Singapore. Meetings had been held for promoting the principles of the Alliance at forty towns in England. One of the most interesting and important departments of the work of the Alliance was the arrangement for a universal week of prayer in January. This season of prayer was now observed throughout Europe, in North and South America, North, South, and West Africa, Australasia, the Pacific islands, and Asia. Many demands had been made for efforts of the Alliance in behalf of religious liberty.

EVENTS OF 1884. The most striking feature in the history of the year 1884, abroad, was the effort of the European nations to seize upon the still unclaimed uncivilized portions of the globe. Out of this policy of expansion grew a necessity for an understanding as to the conditions of sovereignty, which enriched the public law of Europe with the results of two conferences of the powers. A general industrial and agricultural depression produced greater suffering and discontent among the laboring population of Europe than in the previous year, and considerable unrest in the United States also. Several of the governments of Europe proposed measures for the partial solution of the labor questions. Wars in China and the Soudan grew out of the tendency to colonization recently developed among the European powers. In the United States the incidents connected with the presidential contest overshadowed all other events. Abundant harvests did not suffice, at the current prices of produce, to revive commerce and industry from their stagnant condition. The noteworthy occurrences of the year at home and abroad are chronicled below in the order of their dates:

January 1. Opening of the New York and West Shore Railroad. Gen. Iglesias achieves a victory in Peru.

2. Suit against the Louisiana lottery decided against the Federal Government. Railroad collision near Toronto; 25 persons killed.

3. Resumption of negotiations between Prussia and

the Curia. Conviction of the Marquis Rays, the colonial swindler, in Paris.

4. Spanish treaty of commerce with the United States in relation to the West Indies concluded.

5. Burning of a convent in Belleville, Ill.; 27 lives lost. Fighting between the French and the Chinese in Tonquin; China prepares for war.

6. The King of Annam ratifies the treaty with France.

7. Congress resumes its session. Working-men's demonstration in Vienna. Resignation of the Egyptian ministry.

8. Reassembly of the French Chambers.

9. Railroad accident near Bradford, Pa.

10. Court scandal, in relation to the family life of Prince Frederick Charles, transpires in Berlin.

11. The new Egyptian Cabinet announces the evacuation of the Soudan.

12. Close of the Boston Exhibition. The Hungarian Peers reject a second time the mixed marriages bill.

14. Arrival of the damaged steamer Celtic in England. Wreck of the steamer Huai Tuen, bound for Hong-Kong; 200 lives lost.

15. Henry B. Payne elected United States Senator from Ohio. Senator Allison re-elected in Iowa. Burning of a railway train near Bradford, Pa.

16. Acquittal of the accused in the Nutt murder case in Pennsylvania. A line of steamers between Trieste and New York established.

17. Introduction of the temperance education bill in Albany. Senate bill appropriating $1,000,000 for improvement of the Mississippi passes the House. Murder of the prelate Cesare in Rome. The Spanish ministry defeated in the vote on the address.

18. The Senate rejects the Mexican commercial treaty. Wreck of the steamer City of Columbus on the coast of Massachusetts; 97 persons drowned. Reconstitution of the Spanish Cabinet under Canovas del Castillo. Departure of Gen. Gordon for Egypt. E. K. Wilson elected Senator from Maryland.

19. Canovas del Castillo suspends the session of the Spanish Cortes.

20. Conference between the Russian Minister De Giers and the Emperor Francis Joseph in Vienna. Sanguinary tumult in Ireland.

21. The House of Representatives pass a bill to repeal the iron-clad oath. The House Committee decide that the Texas Pacific Railroad land grants are forfeited. The Croatian Diet dissolved amid great excitement.

22. The Committee on Foreign Affairs in the Senate instructed to inquire into the exclusion of American pork from Germany and France. Passing of the electoral bill in the Senate. The House passes the Greely relief expedition bill. Confessions of the murderer Schenck in Vienna.

23. Resignation of Assistant Secretary of the Treasury John C. New. The Bishop of Münster pardoned by the Prussian Government.

24. Passing of the bill relating to the office of Clerk of the Senate, and of the presidential succession bill, by the United States Senate. Mining accident in Colorado; death of 57 miners from fire-damp.

25. Senator Hoar's bill to provide for a vacancy in the presidential office passed by the Senate. Assassination of the detective officer Bloch in Vienna. A deputation to the English ministry calls attention to the housing of the poor. Sinking of the Simla in the English Channel.

26. Storm on the coast of England. General Gordon begins his ride through the desert to Khartoum.

28. Funeral of Lasker in Berlin.

29. The Austrian House of Deputies rejects the bill to declare German the state language. The French Chamber votes the extraordinary budget.

30. Declaration of Secretary Frelinghuysen against retaliatory duties on German products. End of the strike of glass-blowers in Pittsburg. The Danish budget refused by the Folkething.

31. Railroad accident near Indianapolis. Banishment of Socialists from Vienna, and issue of a decree suspending constitutional rights in the capital and environs. Failure of a banking-house in London, with $4,000,000 liabilities.

February 1. The temperance education bill passes the New York State Senate. Bill to restore General Fitz-John Porter to the army passes the House.

2. The spinners in Fall River go on strike. The Ferry ministry sustains a defeat in the Chamber and the Senate. Lynching affairs in Ohio, Nebraska, and Georgia.

4. Morrison brings in his tariff bill in the House of Representatives. The English Government concludes an arrangement with M. de Lesseps in reference to the Suez Canal. The French Chamber passes an act to inquire into the needed reforms for the benefit of the working-classes.

5. Ex-Senator Henry Cooper murdered in Mexico. Opening of the British Parliament. Baker Pasha's army routed by Osman Digma near Tokar; 2,000 Egyptian soldiers slain.

6. Blackburn elected Senator in Kentucky. Massacre of Christians in Tonquin.

7. Flight of the defaulting City Treasurer of Troy; $80,000 of peculations.

8. Mexican land-grant bill passes the Senate.

9. Death of Cetewayo.

10. Devastating floods in the West. Disturbances on the Texas border. Arrests of republicans in Spain. Insurrection in Crete.

11. Final passage of the Greely relief bill in Congress. Congress appropriates $300,000 in aid of the sufferers from Western floods. The Austrian Government lays before the Reichsrath a bill of exceptional measures against the Anarchists. Fresh arrests of Socialists in Vienna. Publication of the Queen of England's memoirs. Bradlaugh excluded from Parliament.

12. News arrives of the fall of Sinkat in the Soudan. Lord Salisbury's vote of censure adopted in the House of Peers. Resignation of Charles Bradlaugh.

13. The commercial convention with Spain signed.

14. The Austrian Reichsrath approve the suspension of constitutional rights in Vienna. Government bill against street demonstrations passed by the French Chamber. Russia annexes Merv in Central Asia.

15. Congress grants $200,000 more for the relief of the flood sufferers. An English expedition for the succor of Tokar departs from Suez. In Chili the first railroad-train crosses the Andes from Buenos Ayres.

16. Prince Bismarck sends back the Lasker resolutions. Rafael Nuñez made President in Colombia. President Caamaño inaugurated in Ecuador. The Christich ministry in Servia resigns.

17. Attempted assassination of the King of Italy. Arrival of Gordon in Khartoum.

18. Adverse vote of Congress on the Dorsheimer international copyright bill. A new Servian Cabinet formed by Garaschanin.

19. City election in Philadelphia won by the Republicans. Storms in Alabama; 15 lives lost. Tornado in the Southern States. Mining catastrophe in Pennsylvania; 19 coal-miners suffocated. Prohibition bill passed by the Iowa Senate. Bradlaugh again re-elected in Northampton. The Gladstone ministry sustained in the vote of censure on Egyptian affairs.

20. Tidal wave in California. Fire-damp explosion near Uniontown, Pa.; 19 miners killed.

21. Bradlaugh again disqualified by vote of Parliament. General Graham's expedition advances.

22. The Portuguese Chamber of Deputies votes the project of constitutional reform.

23. General Ignatieff made Governor of the Russian Trans-Caucasian possessions. The French Government interpellated on the subject of Madagascar.

25. The McPherson currency bill passes the Senate.

26. Congress receives an address of thanks for the Lasker resolutions from the Liberal Deputies of the

German Reichstag. Dynamite explosion in a London railroad-station. Sir A. W. Peel elected Speaker of the House of Commons.

27. Bill repealing the test-oath passes the Senate, with an amendment debarring officers of the Confederate army or navy from military or naval positions. The Hungarian Government takes steps against anti-Semitic agitation. The impeachment of the Norwegian ministry results in the conviction of Selmer, the Prime Minister. Conclusion of a treaty between Great Britain and the Transvaal, recognizing the independence of the South African Republic.

28. The quinine-factory in Philadelphia burned. Gladstone introduces the suffrage bill in the lower house of Parliament. Victory of the British troops near Trinkitat. Baccelli's bill on the reorganization of superior instruction passes the Italian Chamber of Deputies.

29. The Senate passes the bill for the construction of seven steel naval vessels. First report of the Civil Service Commission presented to Congress. Prohibition amendment rejected by the New York State Assembly. Cabinet crisis in Italy.

March 1. Meeting of the Peruvian Congress; Iglesias sworn in as provisional President. Arrest of the Anarchist Kämmerer in Vienna. Recapture of Tokar by the British.

3. The House of Representatives passes a bill pensioning survivors of the Mexican War. New York convict-labor bill signed. The Supreme Court decides in favor of the legality of the act of 1878 to reissue redeemed legal-tender notes. The prolongation of the anti-Socialist law proposed by Prussia in the German Bundesrath.

4. Prohibition adopted in Iowa. The German Reichstag meets.

5. Bill enlarging Yellowstone Park by 2,000 square miles passes the Senate. Resolution of the Clericals for the repeal of the gag laws lost in the Prussian House of Deputies.

6. The Mexican treaty ratified by the United States Senate. European powers agree on combined action against Anarchists. Attack on the Chancellor at the opening of the German Reichstag on account of his treatment of the Lasker resolutions of the United States Congress. German Liberal party formed by union of the Progressists and the Secessionists.

7. Reports of the cattle-disease in Kansas. Snow-slide in Utah; 12 people killed. French advance against Bacninh in Tonquin.

8. Completion of the Mexican Central Railroad.

10. Correspondence with Germany in relation to the Lasker affair laid before Congress by the President. Avalanche in Colorado; 16 deaths. The Peruvian Congress ratifies the treaty of peace with Chili.

12. Bacninh captured by the French troops.

13. The Porter bill passed by the Senate. A woman suffrage amendment approved by the Iowa State Senate. Catastrophe in a Virginia coal-mine; 154 miners lose their lives. Bismarck explains the Lasker episode in the German Parliament, and promises the repeal of the prohibition edict against the import of American swine-flesh. British victory over Osman Digma near Tamanieb. Minister-President Tisza's statement in the Hungarian Parliament in relation to the Austro-German alliance.

14. High water in the Mississippi. Arrests of Anarchists in Pesth.

15. Hugo Schenck, the Vienna girl-murderer, and his accomplices, condemned to death. Prince Bismarck explains the working-men's insurance project in the Reichstag.

16. Stringent measures taken by the Spanish Government to prevent disorder. A detachment of Gordon's troops defeated near Khartoum.

17. Act depriving the New York City Board of Aldermen of the right of confirmation goes into force.

18. Trichinosis in Lathrope, Pa. Explosion of gas in Paris.

19. Resolutions on the Lasker affair adopted by the lower house of Congress. A bill with reference to retaliatory measures introduced in the Senate. The Swiss Federal Council resolves in favor of the extradition and banishment of Anarchists.

20. The Italian ministry hand in their resignations.

24. A hurricane in Kentucky kills 12 people.

25. Earthquake on the Pacific coast.

26. Congress grants $25,000 for the sufferers from the inundations in the Mississippi valley. Minister Sargent nominated to the St. Petersburg mission. Prince Bismarck calls upon Bremen to join the Customs Union.

27. Riot in Cincinnati. Osman Digma defeated near Suakin.

29. A treaty signed between Denmark and Spain.

30. Reconstruction of the Italian Cabinet.

April 1. The House of Representatives passes a bill to call in the trade-dollars. Aguero's expedition lands on the coast of Cuba. Dissolution of the Spanish Cortes.

2. The Danish Folkething reject the project of national defense.

3. Sinking of the Daniel Steinmann off the coast of Nova Scotia; 120 persons drowned. New Greek customs tariff voted. The Norwegian ministers condemned and deprived of office; a new ministry formed.

4. The French in Tonquin march upon Hunghoa.

5. The cholera breaks out in Cochin-China. Massacre of Christians in southern Africa.

6. Proposed introduction of ministerial responsibility rejected by the German Bundesrath. The stamp duty in Mexico creates dissatisfaction.

7. The Blair school bill carried in the United States Senate. The restoration of the old wool tariff defeated in the House of Representatives. Establishment of a colonial association in Berlin. Biancheri elected President of the Italian Chamber.

8. Minister Bratiano in Bulgaria offers his resignation.

9. The Democratic State Convention in Pennsylvania declares in favor of protection and the candidacy of Randall for President.

11. Three men arrested for dynamite crimes in England. The Merv Turcomans acknowledge the sovereignty of the Czar.

13. Tilden and Hendricks decline to become candidates. Attempt on the life of the President of Guatemala. Taking of Hunghoa by the French in Tonquin. Admiral Hewett's visit to the camp of the King of Abyssinia.

14. Journey of the Prince and Princess Imperial of Austria to Constantinople.

15. The beginning of the debate on the tariff in the House of Representatives. Charles E. Coon appointed Assistant Secretary of the Treasury. Gen. Millot occupies Hunghoa.

17. Queen Victoria's visit to Darmstadt.

18. The bankruptcy law carried in the Senate. The general street railroad bill passes the New York Legislature. An encyclical of the Pope against secret societies, in particular the Freemasons.

19. The House of Representatives passes a bill to create a bureau of labor statistics. Dr. Nachtigal sent to the West Coast of Africa by the German Government.

20. Fall of Shendy in the Soudan, and massacre of the garrison.

22. Official recognition of the African Association by the American Government. Earthquake-shock in England.

23. Republican State Conventions in New York, Ohio, and Connecticut. Understanding between England and France in reference to the basis of the Egyptian Conference. Murder of the policeman Hlubeck near Vienna.

24. Republican State Conventions in Michigan and Virginia; Democratic Convention in Iowa. Invita-

tions to the Egyptian financial conference at London issued to the powers.

25. Acquittal of Frank James in Alabama. Discovery of a society of assassins in Sicily.

26. The Ripley navigation bill passes the House of Representatives. The Niederwald dynamite attempt on the life of the German Emperor made public by a statement of Eugene Richter in the German Parliament. Visit of the Prince of Bulgaria in Vienna. Opening of the Italian National Exhibition at Turin.

27. General election in Spain.

28. A committee of the Senate reports a bill relating to interstate commerce. Marine collision on the coast of Newfoundland; 12 deaths. The bill against the manufacture and sale of artificial butter signed by Governor Cleveland.

29. Prosecution of Kellogg for Star Route frauds begun. A fire in a poor-house in Michigan; 14 persons burned to death. Powder and gas explosion in Havana.

30. Republican State Conventions in Massachusetts, New Hampshire, Vermont, Maine, Iowa, Wisconsin, Nevada, California, and West Virginia; Blaine nominated in most of them. Democratic Convention in Massachusetts. Marriage of the Princess Victoria of Hesse to Prince Alexander of Battenberg in Darmstadt.

May 1. Ex-Senator Kellogg acquitted of complicity in the Star Route frauds. Republican State Conventions in Rhode Island, Minnesota, Oregon, Colorado, Maryland, and North Carolina.

2. Republican Conventions in Nebraska and Texas. Forest-fires in New York, New Jersey, and Pennsylvania. The tenement-house cigar bill passed by the New York Legislature.

3. Three suspected dynamite conspirators in Birmingham brought to trial. Failure of the London and Oriental Bank in London.

5. The morganatic marriage of the Grand Duke of Hesse made public.

6. The Morrison tariff bill defeated in the House of Representatives. Germany and France protest against the Anglo-Portuguese Congo Treaty.

7. The German minister to Washington, Eisendecher, succeeded by Von Alvensleben. News of the loss of the Florida with 135 people on board. The bill to legalize marriage with a deceased wife's sister lost in the English House of Commons. Christovitch succeeds Aleko Pasha as Governor-General of Eastern Roumelia.

8. The House of Representatives appropriates $1,000,000 for the New Orleans Exhibition.

9. Inundations in Louisiana.

10. The anti-Socialist law prolonged by act of the German Reichstag.

12. The Tientsin Treaty concluded between France and China.

13. The Reichstag passes a law against explosives. A vote of censure on the Egyptian policy of the Government defeated in the English House of Commons. Official notification of the French Government of the treaty of Tientsin. Victory of the Mudir of Dongola over the Arabs.

14. Railroad collision near Cornellsville, Pa.; 14 persons killed. Rescript of the German Emperor deprecating criticism on the influence of officials in elections. News of the fall of Berber arrives.

15. Mexico ratifies the treaty with the United States. Wreck of the steamer Illyrian on the Irish coast.

16. Shooting of Bogan Cash by a sheriff's officer in South Carolina. Burning of Vienna Stadt Theatre.

18. Majority of the Czarevich proclaimed.

19. Conflict between white and colored people in Danville, Va. Kraszewski and Heutsch convicted of betraying German military secrets and condemned to prison. Adjournment of the Prussian Diet. Discovery of the inoculative remedy against rabies announced by Pasteur. Earthquake on the coast of the Persian Gulf.

20. Adjournment of the Hungarian Chambers. Opening of the new Cortes in Spain.

21. Monument to Luther unveiled in Washington. Visit of the King and Queen of the Netherlands at the Belgian court.

22. Numerous business failures. Floods in Spain.

23. An arbitration board to settle labor disputes established in Pittsburg by agreement of workmen and manufacturers.

24. Socialist disturbance in Munich. Ferry presents in the French Chamber the proposals for the revision of the Constitution.

25. Loss of the French brig Senorine known; 62 lives lost.

26. End of the spinners' strike in Fall River.

27. England and France agree on the programme of the Egyptian Conference. Nihilist threats against the Czar.

28. The National Convention of the Greenback party nominates Benjamin F. Butler for President. Recognition of the Iglesias government in Peru by President Arthur.

29. Bankruptcy of the Penn Bank in Pittsburg. Election riots in Hungary.

30. The German Government takes possession of Angra Pequeña. Three dynamite explosions in London. The Danish Riksdag refuses to ratify the treaty of commerce with Spain. The Naquet bill legalizing divorce passed by the French Senate.

June 1. The United States Senate pass a measure to suppress the opium-traffic. General Babcock and two companions drowned on the coast of Florida.

3. Assembly of the Republican National Convention in Chicago.

6. Nomination of Blaine and Logan at Chicago. Visit of the King of Greece in Vienna.

8. Affray between Orangemen and Nationalists in Newry, Ireland. Boundary dispute between Servia and Bulgaria.

9. The corner-stone of the Berlin Parliament building laid. Riots in Hungary.

10. A commission of officers decide upon the arraignment of Auditor-General Swaim before a court-martial. Publication of Tilden's letter of declination. The Anarchist Stellmacher in Vienna condemned to death. Massacre of the garrison of Berber by the rebels in the Soudan. Clerical victory in the Belgian elections.

11. The State Department asks for $250,000 for the Nicaragua Canal project. Agreement of the Grand Duke of Hesse and Madame Kolemine to a separation. French intervention in Morocco. A treaty concluded between England and the King Joannes of Abyssinia.

12. The Paris treaty for the international protection of patent rights rejected by the United States Senate. Failure of Middleton & Co., Washington bankers. Regulation of the succession to the Dutch throne.

13. Revelations of the Niederwald conspiracy. The Lüderitz establishments at Angra Pequeña declared to be under the protection of the German Empire.

15. Marriage of the Grand Duke Sergius and the Princess Elizabeth of Hesse in St. Petersburg.

16. A female Anarchist arrested in Elberfeld, Germany. Formation of a new ministry in Belgium. Resignation of the new Norwegian ministry.

17. Decision of the Ohio Supreme Court with reference to the Scott law. The Fitz-John Porter and navigation bills disposed of in Congress.

18. The House passes a bill supplementing the Thurman acts. Democratic State Convention in New York. The dissolution of the Belgian Senate. Publication of a royal decree reviving the Prussian Council of State under the presidency of the Crown Prince.

19. The House passes a bill against immigration under labor contracts. France annexes Cambodia. The French Chamber passes the bill to legalize divorce.

21. The German Reichstag adopts a measure to establish compulsory trade associations and apprentice-

ship. Action of the German authorities against Mormon emissaries. Conviction of conspirators in Ireland. Death of the Prince of Orange.

22. Destructive cloud-burst in Montana.

23. Bismarck defines his colonial policy in the Reichstag. Outbreak of cholera in Toulon.

24. Jewish persecutions in Nijni Novgorod. Democratic State Conventions in Ohio, Indiana, Missouri, North Carolina, and Arkansas. German law of expatriation repealed on the motion of Windhorst.

25. The Italian ministry sustained by a vote of confidence.

26. Organization of the Republican National Committee. The Government proposition to subsidize steamship lines voted down in the German Reichstag. The suffrage extension bill passed by the English House of Commons. The repulse of French troops at Langson by a so-called ambush. Bismarck's speech on colonial policy. Sverdrup forms a ministry in Norway.

28. Meeting of the Egyptian Conference in London. Adjournment of the German Parliament.

30. The English ministry sustained on a vote of censure. Mining accident in British Columbia; 24 deaths.

July 1. Strike of the coal-miners in the Hocking Valley.

2. The Fitz-John Porter bill vetoed by President Arthur.

3. The French Chamber passes the proposals for the revision of the Constitution. Presentation of the Bartholdi Statue of Liberty to the American minister in Paris.

7. France demands 250,000,000 francs indemnity from China.

8. Meeting of the Democratic National Convention. Session of Congress closes. Appointments of Kasson, Taft, and Francis, as ministers to Berlin, St. Petersburg, and Vienna. The extension of the suffrage bill rejected in the English House of Lords.

10. Divorce of the Grand Duke of Hesse and Madame Kolemine. Cholera-panic in France.

11. Cleveland and Hendricks nominated in the Democratic National Convention.

12. The steamer State of Maine stranded on the coast of New Brunswick.

13. Attempt on the life of the Emperor Francis Joseph.

14. The Independent Republicans call a National Convention. The Government takes measures for the prevention of cholera. The German flag insulted in Paris.

15. Lynching of five horse-thieves in Montana.

16. Disclosures of the Anarchist Kammerer in Vienna. Action of the Austrian police against Mormon proselyters.

17. News of the rescue of the survivors of the Greely Expedition. Discovery of a plot against the Czar in Moscow and wholesale arrests.

18. Blaine's and Logan's letters of acceptance published. Ravages of the plague in Russian Asia Minor.

19. The divorce law enacted in France.

21. Completion of the Bennett-Mackey cable. Violence against Jews in Galicia. Mass-meeting in London in favor of the county suffrage bill.

22. Excesses committed against the Salvation Army in Switzerland.

24. Fresh arrests in Warsaw and St. Petersburg in connection with the journey of the Czar.

26. Nomination of St. John by the Prohibitionists.

29. Governor Cleveland officially notified of his nomination. Outbreak of the Texas fever among Kansas cattle-herds. The revision bill passes the French Senate.

30. The National Labor party declares for Cleveland. A German expedition departs for the Congo. Wreck of the steamer Amsterdam near Sable Island.

31. Spread of cholera in Italy.

August 1. Arrival of the Greely relief vessels in Portsmouth. Conviction of dynamiters in England.

2. Breaking up of the Egyptian Conference.

3. Banishment of 2,000 persons from Germany at the instance of the Russian authorities. Sinking of the steamer Dione in the Thames.

5. Organization of the French Chambers as a Constituent Assembly. A vote of credit for an expedition to the Soudan granted by the English House of Commons. Popular demonstration in Antwerp against the Clerical School bill.

6. A statue of Herkimer unveiled in Oriskany, N. Y.

7. Hurricanes in upper Austria and Hungary.

8. A German gunboat sent out for the protection of the North Sea fishers. Execution of Stellmacher in Vienna.

9. Coal and iron production stopped in Pennsylvania. Iron-works in Massachusetts closed. Bombardment of Kelung in Formosa by the French fleet.

10. In Tennessee five Mormons are murdered. Earthquake in New York.

11. Caceres attempts a state-stroke in Peru.

13. Revelations of cannibalism among the Greely party. Bankers' Convention in Saratoga. Annual convention of the Irish National League in Boston. Conclusion of the revision of the Constitution in France, and adjournment of the Chambers.

14. Mutiny in the Kentucky State Prison. Adjournment of the British Parliament. A fusion of Democrats and Greenbackers effected in Iowa.

16. Butler's letter of acceptance published. Anti-Jewish riot in Warsaw; seven persons killed. Unsuccessful attempt to assassinate General Gurko. Beginning of the sales of the lands of the Propaganda in Rome.

18. Explosion in the Russian fortress of Kazan; 100 persons killed.

19. Cleveland issues his letter of acceptance.

21. Sinking of the steamer Tallapoosa.

23. The arsenal at Foochow bombarded by Admiral Courbet.

27. French operations in the Min river ended. Dissolution of the Croatian Diet. Sanguinary street fight in Lima, Peru.

29. Sinking of the Belmont in Ohio river; ten deaths. Railroad-fire in Colorado.

30. Hendricks opens the campaign in Indiana. The Clerical School law carried in the Belgian Chambers.

September 1. Disturbance in the Hocking valley. The Extreme Left in France demand the assembly of the Chambers on account of the Chinese war. Departure of Lords Wolseley and Northbrook for Egypt.

2. Opening of the Electric Exhibition in Philadelphia. Waller nominated for Governor by the Democrats in Connecticut. State election in Vermont.

4. Arrest of a band of Socialists in Vienna.

5. Coal-mines stop work in Ohio.

7. Conflagration in Cleveland. Riots in Brussels and Antwerp on account of the new school law.

8. State election in Maine. Arrival of the Czar in Warsaw.

14. School law signed by King of the Belgians.

15. Meeting of the three Emperors at Skiernievice. Revolution in Colombia.

16. Publication of Blaine's letters by Fisher and Mulligan.

17. Discovery of tin in West Virginia.

19. Earth-shocks in the West and the Northwest. Suspension of the Egyptian sinking fund.

20. Execution of the Anarchist Stellmacher in Vienna. Opening of the Vorarlberg Tunnel. Gen. Gordon defeats the Arabs near Khartoum.

23. A British gunboat founders off the coast of Ireland; 52 persons drowned. Jewish riots in Saratov, Russia; 11 persons killed and many wounded.

25. Gresham appointed Secretary of the Treasury.

27. Protest of the great powers against the suspension of the Egyptian law of liquidation.

28. Hurricanes in New York, Pennsylvania, and Ohio.

29. Meeting of the Hungarian Parliament.

30. In Iowa the courts decide that the purchase of spirits is not punishable under the prohibition laws.

October 1. Opening of the Prime Meridian Conference in Washington.

2. Gordon's troops recapture Berber.

3. The Mormons excluded from jury service in Utah. Railroad accident in Wisconsin. Burning of the castle Christiansborg, in Copenhagen.

4. The French occupy Kelung, but are repelled at Tamsui.

5. German annexations on the slave coast.

6. Intelligence arrives of the murder of Col. Stewart.

14. Meeting of the French Chambers.

17. The English Government decides to increase the strength of the navy.

18. The Council of the Regency assumes the Government of Brunswick on the death of the Duke.

20. The Meridian Conference in Washington agrees on a normal day. Tisza introduces in the Hungarian Parliament propositions for the reform of the House of Peers. The Liberals victorious in the Belgian municipal elections.

21. Official announcement of the presidential vote of New York State.

27. Mining disaster in Pennsylvania; 14 persons killed.

28. The Scott law in Ohio declared unconstitutional. McCulloch appointed Secretary of the Treasury, and Gresham District Judge. Parliamentary elections in Germany. The Austro-Hungarian Delegations meet in Pesth.

30. In Colorado 17 cattle-thieves are lynched.

31. Statement made concerning the Spanish-American treaty.

November 1. Close of the Meridian Conference. Theatre panic in Glasgow, Scotland.

2. Election disturbance in Loreauville, Pa. The results of the German elections leave the Government in the minority.

4. Presidential election

5. Floods in Spain.

6. A dynamite-factory near Reading blown up; ten lives lost. Insurrection of the Skye Crofters in Scotland.

7. The cholera breaks out again in Paris.

8. Several Rhode Island spinning-factories stop work.

9. Opening of the Plenary Council at Baltimore.

11. The county suffrage bill passed by the British House of Commons.

13. The Mexican Congress begins the discussion of the bill for the conversion of the debt.

14. The Russians march into Khiva.

15. Final determination of the result of the election in New York State. Court-martial proceedings begun against Auditor-General Swaim. Opening of the Congo Conference in Berlin.

17. The bill passed by the Reichstag in relation to the abrogation of the expatriation law thrown out in the Reichsrath. Opening of the Dutch States-General.

19. Murderous assault on editor De Young in San Francisco. Official recognition of the International Association of the Congo by Germany. Demonstration of starving work-people in Paris.

20. Assembly of the German Reichstag. Governor Cleveland makes a declaration on the negro question.

21. Labor disturbances in the Hocking valley. Demonstration of Spanish students against the clergy.

22. Adjournment of the discussion on the conversion of the debt in Mexico.

23. Demonstration in Hungary in honor of the rehabilitation of General Görgey.

24. Compromise between Gladstone and Salisbury on the suffrage question.

25. Earthquake in Peru.

26. Bismarck defeated in the Reichstag on the question of paying members of the Reichstag.

27. The Hugues-Morin scandal in Paris.

28. Sinking of the steamer Durango in the English Channel.

29. Passage of the electoral bill in Virginia. In Vienna 20 Anarchists are convicted.

December 1. Opening of the final session of the Forty-eighth Congress. Annual message of the President. Great Britain recognizes the International African Association. Gladstone introduces the redistribution bill in the House of Commons. President Diaz installed in Mexico.

2. The Governor of Illinois declares Leman elected. Recommendation of more stringent measures against polygamy by the Utah commission. Ferry meets with a reverse in the French Chamber.

3. Conviction of five polygamists in Arizona. Law empowering the Government to expel or imprison priests for the illegal exercise of sacerdotal functions repealed by the German Reichstag.

4. Dynamite explosion in Rochester, N. H.; seven persons killed.

5. Bismarck presents a White Book to the Reichstag. Dr. Schenck elected President of the Swiss Republic. The county suffrage bill passes the House of Lords.

6. Completion of the Washington Monument in Washington.

7. Close of the Plenary Council in Baltimore.

8. The collection of head-money on immigrants declared unconstitutional by the United States Supreme Court. Decision in regard to the Chinese law. The steamer Pochard founders off Holyhead.

9. Captain Dudley and his crew condemned to death in England for cannibalism.

10. Nihilists proclaim the death-sentence of Tolstoi, Russian Minister of the Interior.

11. Bankruptcy of the Bohemian Land Credit Association.

12. Storm on the Rappahannock in Virginia; many lives lost. Revolution in Corea.

13. Mining catastrophe in Hungary; 75 deaths. Dynamite explosion under London Bridge.

15. Bill to discontinue the issue of greenbacks of small denominations defeated in the House. Bill passed to raise the head of the Agricultural Department to the position of a Cabinet officer. Defeat of Bismarck in the Reichstag on the budget. Trial of Anarchists in Leipsic for the Niederwald attempt.

16. Publication of the Spanish-American treaty. Opening of the New Orleans Exhibition. The Senate passes the bill for the admission of Dakota. The Reagan substitute for the inter-state commerce bill passed the House.

18. McCulloch's nomination as Secretary of the Treasury confirmed by the Senate. Panic on the Vienna Stock Exchange; flight of a thievish bank director.

19. German annexations in the South Sea. Madame Kolemine's complaint non-suited in the German courts.

22. The Senate passes the bill to create a whisky commission. Three of the Niederwald conspirators condemned to death.

24. Miss Hill wins her suit against ex-Senator Sharon.

25. Earthquake in Spain; great loss of life.

26. Secretary Frelinghuysen defends the Spanish treaty.

28. Vice-President-elect Hendricks expresses himself on the subject of the colored people of the South.

29. General Wolseley begins his advance from Korti on the Nile.

30. Secretary McCulloch's orders in relation to leaves of absence and absence from duty in the Treasury Department. Betrothal of the Princess Beatrice of England to a Prince of Battenberg.

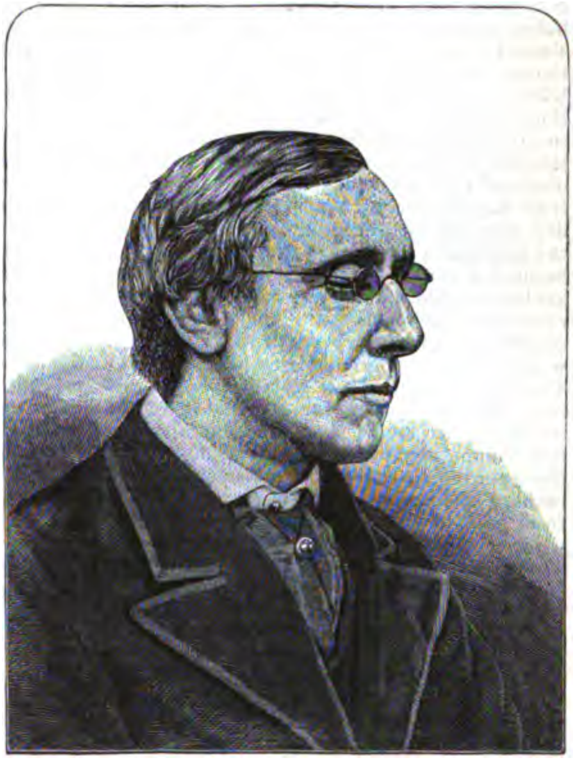
F

FAWCETT, HENRY, an English statesman, born in Salisbury in 1833; died in Cambridge, Nov. 6, 1884. His father was a magistrate in Salisbury. The boy was educated at King's College School, London, and at Trinity Hall, Cambridge, where he was graduated with high mathematical honors in 1856, and obtained a fellowship. In 1858, while he was out shooting, the shot from a gun accidentally discharged penetrated both of his eyes, and he was totally blind thenceforth. Nevertheless he continued his studies, and scarcely gave up any of the athletic sports to which he had been addicted, but continued to ride, row, skate, and angle as before. He devoted himself especially to political economy, won a reputation by his numerous published articles on the subject, and in 1863 was made professor of that science at Cambridge. He published a "Manual of Political Economy" in 1864 (enlarged edition, 1869), "The Economic Position of the British Laborer" in 1865, "Pauperism, its Causes and Remedies" in 1871, "Speeches on Current Political Questions" in 1873, and "Free Trade and Protection" in 1878.

In 1867 Prof. Fawcett married Millicent Garrett (born in 1847), a sister of Mrs. Garrett Anderson, the first woman physician in England. Mrs. Fawcett shared in her husband's economic studies, was joint author with him of a volume of essays (1872), and also published "Political Economy for Beginners" in 1869, and "Tales in Political Economy" in 1874. She has been active in the movement for the extension of parliamentary suffrage to women.

After two unsuccessful attempts to enter Parliament, Prof. Fawcett was elected for Brighton in 1865, and re-elected in 1868. In contested elections he was notable for refusing to pay any expenses but those that were official and necessary. In 1880 he was appointed Postmaster-General in the new Gladstone administration, and became a Privy Councilor. He held this office till the time of his death, and managed its affairs with great skill and diligence. Among his reforms were the money-order system, the savings-bank, annuities, and life-insurance provisions, telegraph service, reply postal-cards, and the parcel post.

He wrote and lectured largely on his favorite topics, gave special attention to the condition of India, and was successful in his efforts to remove some of the oppressive taxation from her Majesty's Asiatic subjects. He opposed and defeated the Irish Universities Bill in 1873, on the ground that it would limit injuriously the range of higher education in Ireland by striking out those branches—philosophy, ethics, history—in which the Roman Catholics were unwilling to receive instruction from a body composed jointly of Catholic and Protestant members. In 1883 he was elected Lord Rector of the University of Glasgow.



HENRY FAWCETT.

FINANCIAL REVIEW OF 1884. The financial crisis of May substantially fulfilled the popular superstition that events of this character are decennial in their occurrence, as from the panic of 1873 to that of this year there was a period of ten years and eight months. It was expected in 1883, and doubtless much of the depression in that year was due to the fear that it might be precipitated by some accident; but the fact that it did not then occur, and that the shrinkage in stocks and staples had been so great during the previous two years and a half, led some to believe that the catastrophe might happily be averted. Those who took a hopeful view were encouraged by the evidence of commercial stability generally displayed, the weak houses having, one after another, succumbed to pressure from natural causes, while the survivors, by the practice of strict economy and by conservative management, had firmly intrenched themselves so as to withstand almost any shock. The manufacturing industries were also upon a solid foundation, as is shown by the fact that so few failures among them occurred during the year. Neither merchants nor manufacturers had been expanding their business, credits had been curtailed, stocks of goods reduced, and there appeared to be a general understanding patiently to wait for positive indications of a permanent improvement in the demand before taking any decisive step. The result showed the wisdom of such a course, and, although the failures of the year involved liabilities amounting to $240,000,000, most of them were financial, and many the direct result of stock speculations. Clearly, therefore, this was not a commercial crisis. Those who observed that the depression in industries and trade began to be felt when tariff reforms were first agitated by Congress, and who recalled the fact that at least one of the panics had been brought about by changes in the revenue, regarded it as probable that the next crisis would result from such legislation; and this may have contributed to the depression in trade, which was one of the underlying causes of the panic. Those who felt that the stability of our currency depended upon the suspension of the coinage of the standard silver dollar, claiming that compulsory production of $2,000,000 of these per month would, at no distant day, and perhaps suddenly, change the metallic basis from gold to silver, watched the progress of silver coinage with anxiety, and regarded it as almost certain that the next panic would be a currency crisis. But while the coinage of the silver dollar may have aided, it did not actually produce the catastrophe, for the flurry in February, caused by the suggestion that the Treasury might soon be compelled to ask the banks to accept silver certificates, had only a temporary effect upon the markets. The panic was due to a variety of causes, none of which was entirely controllable. It may be said to have been the natural result of the inflation, which began with 1878 and ended by the middle of 1881. The shrinkage in stocks and bonds, which continued for two years and a half, not only embarrassed the vast army of speculators, but it crippled banking and commission houses who had been carrying a large portion of the load as collateral on loans, and it caused such losses among capitalists and promoters of railroad enterprises as to make them unable or unwilling to revive or reorganize their properties when these were almost on the verge of bankruptcy. By far too many of the banks at the opening of 1884 were loaded with comparatively dead assets, which they were holding in the hope of ere long being able to convert into cash. That this is true is shown by the revelations following the collapse of the Metropolitan and some other banks of the country. The utter disregard of the rights of stockholders of railroad corporations as shown in the almost unprovoked wars between rival lines and among pools, was a remote contributing cause of the panic, for it created such an unfavorable impression abroad as to induce the return of vast amounts of our securities, thereby increasing the burdens upon capital at a time when the load was almost insupportable. The faith in the banking system of the country and in the machinery provided for the periodical and unannounced investigations into the condition of the banks was rudely shaken by the disclosures attending the management of the Marine, Second National, and Metropolitan banks. This shock precipitated the crisis. Perfection is impossible in any system, but obvious errors in bank-management can, and doubtless after this recent experience will, be corrected. The New York associated banks are, so to speak, the bulwark of the entire banking system of the country. Their methods of management must be carefully scrutinized, not only by the Government officials, but by the association and rules established and enforced, which will promptly arrest any irregularities or faults of administration, to the end that confidence in individual banks may be as unwavering as it is in all the institutions when associated for mutual protection.

The following tabular survey of the economical conditions and results of 1884, contrasted with those of the preceding year, is taken from the "Commercial and Financial Chronicle":

	1883.	1884.
Coin and currency in United States, November 1	$1,523,866,989	$1,541,566,140
Mercantile failures	172,874,172	226,343,427
Imports of merchandise, twelve months	687,066,216	629,227,730
Exports of merchandise, twelve months	795,166,116	749,308,302
Imports of gold and silver, twelve months	36,209,318	43,462,434
Exports of gold and silver, twelve months	31,843,440	70,501,744
Railroads constructed, miles	6,753	4,000
Gross earnings of sixty-six railroads, twelve months	$299,164,918	$287,985,550
Wheat raised, bushels	420,154,500	512,763,900
Corn raised, bushels	1,551,066,895	1,795,528,432
Cotton raised, bales	5,714,052	5,900,000
Pig-iron produced, tons (2,240 pounds)	4,623,000	3,884,000
Anthracite-coal produced, tons	31,793,027	30,718,293
Immigration, twelve months	560,196	453,988

The prices of leading staples on or about the 1st of January, 1885, compared with prices at the same date in 1884 and 1883, were as follow:

	1883.	1884.	1885.
Cotton, middling uplands, per pound	10 3/16	10⅝	11⅛
Wool, American XX, per pound	35 @ 43	33 @ 41	34 @ 36
Iron, American pig, No. 1, per ton	25 00 @ 26 00	20 50 @ 21 50	19 50 @ 20 50
Steel rails at mills	40 00	35 00	28 00
Wheat, No. 2 red winter, per bushel	1 09¾ @ 1 10½	1 10¾ @ 1 12¾	84 @ 86
Corn, Western, mixed No. 2, per bushel	66½ @ 66¾	63¾ @ 64	53 @ 54½
Pork, mess, per barrel	18 37½ @ 18 50	14 75 @ 15 25	12 50 @ 13 00

The Banks and the Money-Market.—Money was almost unprecedentedly cheap in 1884, the exception being during the crisis in May, when banks positively refused to loan, even upon Government bond collateral, and consequently money commanded 3 per cent. per diem commission and interest. On the 21st of June there was a sudden demand for money at 1/16 of 1 per cent., due to disquieting rumors circulated by the bears in the expectation of unfavorably influencing the stock-market, but after a 15 per cent. rate on the following business day, the inquiry gradually subsided, and the extremes for money thereafter for the remainder of the year were 4 per cent., and flat, bankers' balances being frequently left over at the close of the day free of interest, the lenders preferring the collateral to the money. A distinction should, however, be made between loans by banks and by brokers. The banking institutions were not liberal lenders of money after the May panic, carefully discriminating against any but the choicest stock and bond collateral, and refusing to discount mercantile paper unless it was of unquestioned character. Single-name paper was almost unsalable for the greater part of the summer, and this extremely conservative policy on the part of the banks resulted in seriously embarrassing several commercial houses, and it is alleged caused the failure of one prominent dry-goods firm. The steady liquidation in the stock market and the almost entire absence of non-professional trading, materially lessened the demand for money on call, and this will account for the liberal rates at which bankers' balances were offered. Those of the banks that loaned upon stock collateral rarely did so below 2 per cent., and, as they exacted the best security, borrowers who could not furnish it resorted to the Stock Exchange. After the panic the New York Clearing-House Association appointed a committee to consider "whether the methods of business, as conducted by the several members of the association, are uniform and correct in their operation with the public, and equitable to all the banks which are thus bound together in the Clearing-House Association." This committee subsequently reported in favor of refusing longer to pay interest on balances of interior banks, claiming that these deposits were periodically attracted hither by a rate of interest higher than that which could be obtained at home, and that the banks receiving these deposits were tempted, by this plethora of funds, to make injudicious loans, thereby imperiling their own safety and that of others. At the earliest indication of danger these deposits would be withdrawn, thus deranging the money market and inflicting serious injury upon speculative and other interests. The committee's report was not adopted, but later in the year the banks generally agreed to reduce to 2 per cent. the interest thereafter to be paid on deposits of their correspondents in the interior. This action, however, did not cause the withdrawal of funds from this center to any extent, mainly for the reason that there was so little demand for crop purposes, that the supply at the West and North was abundant without drawing upon the New York balances. The ebb and flow of money incident to the movement of crops, which in previous years has been an important feature of the money market, was in 1884 almost insignificant. The influx began as usual with the beginning of the year, but it was arrested by the middle of February in consequence of the silver scare which at once caused a hoarding of gold, the withdrawal of deposits by interior banks, and stimulated exports of gold to Europe. The country institutions did not return the funds so withdrawn, and when the crisis came in May they withdrew the greater part of the remainder of their balances, retaining them until confidence was fully restored at this center. Even then, only a portion came back, so that, when the cereal crop was ready to move, there was an abundance of funds at the West for this purpose. This exceptional movement is indicated by the course of deposits in the associated banks. The year opened with $329,950,200, and there was a steady increase to $363,544,400 by the middle of February, part of which was accounted for by the gain in this interval of $15,997,000 in loans. Influenced by the fear that silver certificates might be forced upon the banks in settlement of debit balances due the Clearing-House by the Sub-Treasury, the deposits were drawn down to $333,215,600 by the beginning of May. The changes in loans in the interval between February 9 and May 3 were shown by an advance from $341,919,100, on the first-named date, to $351,087,200 March 15, and then a decrease to $341,990,500 by May 3. The movements in the surplus reserve were first an advance from $8,211,950, at the beginning of the year, to $21,094,400 by February 9, and then a decline to $806,000 by May 3. Specie was of course most directly influenced.

This stood at $62,877,000 at the opening of the year, rose to $77,866,200 by February 23, and fell to $55,997,100 by May 3. The exports of gold to Europe during the three months ending with the close of April amounted to about $32,000,000, indicating the absorption of the $21,869,100 drawn from the banks, besides part of the supply that came from the Treasury in this interval. On the 3d of May the bank return showed an average of $341,990,500 loans, $55,997,100 specie, $28,112,800 legal tenders, $333,215,600 deposits, and $14,417,500 circulation. On May 24 it indicated a loss of $28,812,500 loans, $10,487,100 specie, $6,086,100 legal tenders, $36,640,300 deposits, $100,700 circulation, and $7,413,125 surplus reserve. From this point of extreme depression the recovery was gradual, and by December 6 the statement showed an average of $288,044,800 loans, $86,494,600 specie, $38,270,400 legal tenders, $329,870,200 deposits, $11,587,200 circulation, and the unprecedented sum of $42,297,450 surplus reserve. The restoration of confidence, so far as the associated banks were concerned, was speedy, as is indicated by the return of cash and deposits after the 24th of May. This was materially if not wholly aided by the action of the banks in the crisis. On the announcement of the suspension of the Metropolitan National Bank, May 14, the Clearing-House Association was convened and arrangements were made to issue loan certificates for Clearing-House purposes, on the basis of 75 per cent. of the assets of the banks, the object being to unite all the institutions so as to prevent runs upon individual banks, and to enable them to settle their balances with these certificates instead of with cash. The total issue between May 15 and June 6 was $24,915,000, and all, except $5,290,000, which were held by the Metropolitan National Bank, were retired by October 3. The issue of certificates and the united action of all the banks accomplished the desired object, and the excitement incident to the panic rapidly subsided. The collaterals turned over by the Metropolitan Bank as security for its certificates consisted in part of real estate, which was eventually sold, and in part railroad mortgages and chattels belonging to the president of the institution. The latter have not been entirely converted, and some time may elapse before all the certificates issued to this bank can be retired. It should be stated that of the eighty-two Clearing-House banks only twenty took out certificates, and several did so solely as a precautionary measure.

The discount rates for prime commercial paper were 6 to 4 per cent. in January; 5½ to 4 until the middle of May; 6½ to 5½ to the end of July; 6 to 5 for the ensuing three months, and 6 to 4½ for the remainder of the year. Single-name paper was more freely accepted during the autumn and early in the winter, but banks gave preference to that made solely in the way of trade.

The condition of the New York Clearing-House banks, the rates for money and exchange, and prices for United States bonds on or about Jan. 1, 1885, as compared with the preceding two years, are shown in the following summary:

	1883.	1884.	1885.
NEW YORK CITY BANKS:			
Loans and discounts	$311,071,200	$327,585,700	$295,874,200
Specie	57,627,100	60,468,100	88,170,500
Circulation	17,625,500	15,456,800	11,618,600
Net deposits	291,668,600	320,798,000	335,272,100
Legal tenders	18,664,200	26,479,100	36,592,360
Legal reserve	72,915,900	80,198,250	83,818,025
Reserve held	76,291,300	86,947,200	124,762,800
Surplus reserve	$3,375,400	$6,748,950	$40,944,775
MONEY, EXCHANGE, SILVER:			
Call loans	3 @ 12	1 @ 2½	1½ @ 3
Prime paper, sixty days	6 @ 6½	5 @ 5½	4½ @ 5½
Silver in London, per ounce	50⅞*d.*	51*d.*	49⅝*d.*
Prime sterling bills, sixty days	4 81	4 82½	4 81
UNITED STATES BONDS:			
3s, registered, option United States	102¾	100¼	101⅛
6s, currency, 1898	132	134	131
4½s, 1891, coupon	113	114¼	113¾
4s of 1907, coupon	119⅝	123⅜	121⅝

Appended is the Clearing-House statement of totals at the beginning of each quarter of 1884, and at the end of the year:

DATE.	Loans and discounts.	Specie.	Circulation.	Net deposits.	Legal tenders.
January 5	$331,355,000	$62,877,000	$14,706,700	$329,950,200	$27,822,500
March 29	346,298,700	66,996,900	14,333,800	346,709,800	27,405,000
June 28	293,450,500	55,817,900	14,384,500	286,158,800	28,848,300
September 27	291,126,700	73,826,500	14,187,400	305,146,800	30,895,800
December 27	295,874,200	88,170,500	11,618,600	335,272,100	36,592,300

Foreign Exchange.—The merchandise imports for 1884 were $57,838,486 below those for 1883, and the exports of domestic and foreign produce were $45,862,814 less than for the previous year. The excess of merchandise exports over imports was $120,076,072, against $108,099,900 in 1883. There was an excess of exports over imports of specie and bullion of $27,039,310 in 1884, against an excess of imports over exports of the same of $4,365,878 in 1883. The excess of exports over imports of merchandise and specie amounted in 1884 to $147,115,382, against $103,734,022 in 1883. This shows that, deducting $100,000,000 to cover freights, insurance, undervaluations, etc., from the apparent trade balance at the beginning of the year, there was left only a very small actual balance in our favor. The outward movement of breadstuffs was checked early in the year by speculative manipulation of the markets at the chief distributing centers, and the unsettled feeling at the Stock Exchange, resulting from the collapse of the North River Construction Company, and the further decline in Oregon and Transcontinental and Northern Pacific, induced the return of securities from abroad, thus contributing to keep exchange firm at about the gold-exporting point during January. Early in February the suggestion that the Treasury Department would soon have to settle its debit balances at the Clearing-House in part with silver certificates, tended to alarm foreign bankers. Exchange advanced to the gold-exporting point, and it was strong during February, March, and April, and by the end of the last-named month $32,000,000 gold had been exported. The panic in May, by suddenly advancing the rate for money, unsettled exchange, which fell sharply and so low that gold was ordered out from France and London. The market did not react after money became easier, because of a pressure of bills drawn against breadstuffs exports made possible by the collapse of the speculation in these staples. There was also more or less buying by Europeans of those of our securities which possessed merit and had been unduly depressed during the panic. In June and July borrowed bills, and those made against a Canadian Government loan, negotiated in London, pressed exchange to the gold-importing point, and the movement hither was moderate during these months. The fall in sterling was arrested in August, but it was again approaching the gold point in October, when the Bank of England, in order to check withdrawals and accumulate bullion, advanced the rate of discount from 3 to 5 per cent. This effectually stopped gold shipments to America from London, although some was sent from the Continent. In October, purchases of long sterling began to be made for investment by parties who sought security for their money, and at the same time expected to realize a fair profit in the difference between the purchase price and that which would result from the sale of the bills at maturity. At first these operations attracted little attention, but they gradually increased in magnitude, and this demand for long sterling tended to absorb nearly all the offerings of bankers and commercial bills, keeping the rates very close to the gold-exporting point for the remainder of the year.

Manufacturing Industries.—In 1884 industrial enterprises were depressed, iron, cotton, and woolen mills suspending operations as the demand fell off, while other manufacturers presented to their employés the alternative of closing the mills or reducing wages. The laboring classes almost uniformly accepted the reduction, and toward the close of the year they were rewarded for their sacrifice, most of the mills resuming operations, although on a restricted scale. The production of pig-iron was cut down from 4,623,000 tons in 1883 to 3,834,000 in 1884, but prices did not improve, and one feature of this industry was competition in the Pennsylvania markets of Southern irons, mostly from Alabama, which was made possible by the decreased cost of manufacture. The production of anthracite coal was reduced from 31,793,027 tons in 1883 to 30,718,293 in 1884, and toward the close of the year it was determined to substitute for the plan of restriction, which had been in force for the previous six years, the policy of allotment, each company being allowed to produce monthly quotas on the basis of 30,000,000 tons a year for all the producers. Railroad-building progressed more rapidly than might have been expected, it being stimulated to some extent by the low price of material and labor. The total mileage of the year was about 4,000, representing, at $30,000 a mile, including equipment, a capital outlay of $120,000,000, against about $202,600,000 in 1883. A very large amount of foreign and domestic capital was invested during the year in grazing-land and the establishment of cattle-ranches.

The Crops.—The cereal crops were almost unprecedented in magnitude, and of superior quality. The Agricultural Bureau's estimate of the production of wheat was 512,763,900 bushels, against 420,154,500 in 1883 and 502,836,700 in 1882. That of corn was 1,795,528,432 bushels—the largest ever grown—against 1,551,066,835 in 1883; and that of oats was 583,628,000, against 571,302,400 in the previous year. The cotton-crop was somewhat below early expectations by reason of drought in Texas, but the latest estimates place the yield at about 5,900,000 bales, against 5,714,052 in 1883. The very favorable outlook for a large yield of fall-sown grain caused a sharp fall in wheat in March, supplies that had been carried through the winter by speculators being thrown upon the market. This established comparatively low prices by the time the crop of winter wheat was gathered, and induced the prompt marketing of the staple. The European cereal crops were also large, and supplies pressing on the London market from almost every quarter forced the price to the unprecedented figure of 31*s.* 6*d.* per quarter. This decline in Europe naturally affected our markets, and producers of spring wheat in the extreme Northwest who, raising almost nothing else, were obliged to sell, had to dispose of their product below the cost of production. In the winter-wheat belt, however, where corn is also raised, the farmers were more fortunate. The demand for the last-named staple became so urgent in September that deliveries for that month were cornered, and the price forced to $1 per bushel. This enabled those who had the remnant of the previous crop on hand to sell it at good prices, thus supplying their current requirements for money, and leaving them free to hold their wheat for better prices. Toward the close of the year wheat reacted to a figure which drew out moderately large supplies of both spring and winter grain, the exports were comparatively liberal, and the condition of the markets became more satisfactory to the producer. Taking the prices on the first of January each year, and the total yield for the previous season, we have the following approximate results in quantities and values:

	1883.			1884.		
	Yield, bushels.	Price, Jan. 2, 1884.	Value of crop.	Yield, bushels.	Price, Jan. 2, 1885.	Value of crop.
Wheat	421,000,000	$1.12	$471,520,000	518,000,000	$0.84	$430,920,000
Corn	1,550,000,000	.64	992,000,000	1,800,000,000	.53	954,000,000
Cotton (bales)	5,714,000	.10⅛	289,700,000	5,900,000	.11⅛	316,370,000

Railroads.—Early in the year the granger roads suffered from the effects of the light crops of 1883; the lines west of Chicago and in the Colorado pool began to cut rates, and the competition of new roads was seriously felt. The movement of the old crops of corn and of new winter wheat in the spring months aided in a partial recovery in traffic, but thereafter business fell off, and the depression in trade which prevailed through the summer and early in the fall had a marked influence upon railroad earnings. One important feature was the war between the New York Central and the New York, West Shore, and Buffalo, which first took the form of cutting passenger rates, and resulted in the reduction of the tariff in this State to one cent per mile. Later, there was a cut in freight rates, and by October all the roads directly controlled by Mr. Vanderbilt, and the Grand Trunk, Erie, Delaware, Lackawanna and Western, and the Baltimore and Ohio, became involved in the contest. The last-named road, having had its New York passenger connections cut off by the refusal of the Pennsylvania to haul its trains, formed an alliance with the West Shore, furnishing it with a western outlet over the Niagara Falls short line, and the Grand Trunk also facilitated the business of the West Shore to a greater or less extent. This had a demoralizing effect upon the passenger and freight traffic passing over the American trunk lines. The losses resulting from this competition compelled a reduction of dividends by the New York Central and seriously embarrassed the Erie, and more or less all the lines running to the seaboard. The following shows gross and net earnings of the principal trunk roads:

	1879-'80.	1880-'81.	1881-'82.	1882-'83.	1883-'84.
PENNSYLVANIA:					
Gross earnings	$41,260,078	$44,124,182	$49,079,884	$51,083,252	$48,566,911
Net earnings	16,635,025	17,414,378	18,482,429	19,336,102	18,039,902
NEW YORK CENTRAL:					
Gross earnings	33,175,918	32,348,395	30,628,781	33,770,722	28,148,667
Net earnings	10,569,219	7,392,827	5,748,904	7,327,156	4,668,759
ERIE:					
Gross earnings	15,942,023	20,715,605	19.975,774	22,802,246	21,687,485
Net earnings	4,767,324	7,459,375	6,887,681	7,857,668	5,279,358
BALTIMORE AND OHIO:					
Gross earnings	18,317,740	18,463.877	18,388.875	19,789,387	19,436,607
Net earnings	7,986,970	7,078,398	7,454,662	8,705,823	7,760,300

The Stock Market.—The year 1884 opened with depression, the result of the unsettled feeling prevailing at the end of the previous year, and this was intensified by collapse of railroad enterprises, the New York and New England and the North River Construction Companies being placed in the hands of receivers in quick succession. The failure of the last-named company was largely due to the embarrassments of men prominently identified with it who had suffered severe losses by the decline in Oregon and Transcontinental and the Northern Pacific securities, and a further sharp fall in the market value of the latter naturally followed the suspension of the North River Construction Company. Immediately thereafter New York, West Shore, and Buffalo first mortgages declined rapidly, as it was seen that a receiver for that property was inevitable. The whole market sympathized with this downward movement, and the bears freely made speculative sales, and thereby created a large short interest. Toward the close of the month a syndicate of leading operators was formed for the purpose of making a loan to the Oregon and Transcontinental, on its pledge of stock assets held by it, embracing the Northern Pacific and Oregon Railway and Navigation shares. This aided in sharply turning upward the properties above named, the bears covered their short contracts, and a firm tone was imparted to the market, which continued through February until the close of that month, when the market began to feel the influence of the large and continued withdrawals of gold for hoarding and shipment caused by what is known as the "silver scare" elsewhere referred to. The reaction from this cause was, however, not important, and the bears were not permitted to take advantage of it, for a combination in Delaware, Lackawanna, and Western partially cornered that stock on the first of March and compelled a covering of short contracts at heavy losses. This was followed by a squeeze in New York Central about the middle of the month, and the bears were so greatly demoralized by these events that their adversaries succeeded in disposing of a very large amount of the stock which they had bought during the period of depression early in January. The inclination of the market in April was downward with occasional reactions, the natural results of the closing out of the short interest, and of the timidity of the bears, who were slow to take advantage of the apparent indifference of the bulls as to the course of prices. There was not the least indication during the first few days of May that a crisis was impending. Even the suspension of the Marine National Bank, and the failure of Grant & Ward, which occurred on the 5th, caused little more than a slight shock in the market, for it was quickly ascertained that the bank had none and the banking firm only a slight interest in stocks. The full details of the close relations existing between the bank and Grant & Ward were gradually made public, and then the Erie stocks and bonds were chiefly influenced because of the disclosure that the railroad company had collateral with the bank and the firm which would be temporarily tied up by the disaster. The market was irregularly recovering from this shock, when a rumor came on the afternoon of the 13th that there had been a large defalcation in one of the up-town banks. This was accompanied by free selling of stocks by a house not regarded as prominent in the market, and in the closing moments of the business day the excitement became intense because of the news that the Continental Bank had, for its own protection, refused to certify checks of the house referred to. Later in the afternoon the rumor of defalcation was confirmed by the statement that John C. Eno, President of the Second National Bank, was a defaulter to the amount of over $3,000,000, a greater part of which had been lost in Wall Street speculations. The bank examiner made an investigation, reported the amount required to be made good to save the bank from insolvency, the directors of the institution promptly came to its relief, and the bank resumed business the next morning. The shock of this enormous defalcation precipitated the panic. The stock market opened on May 14 intensely excited, although it was then known that the Second National Bank had resumed business, and that the embarrassments of Mr. Eno's brokers would not involve other firms. Within an hour a run commenced on the Metropolitan National Bank, which compelled the closing of its doors before noon. Some of the deposits in this institution belonging to interior banks had previously been withdrawn because of distrust excited by the failure of the Marine Bank, and also for the reason that the president, Mr. George I. Seney, was known to be largely interested in unprofitable railroad operations, and it was suspected that the affairs of the bank were more or less involved by his individual transactions. The run on the morning of the failure was directly caused by the embarrassments of the stock firm of Nelson, Robinson & Co., in which Mr. Seney had an interest, and the suspension of this house so intensified the excitement that the bank was compelled to succumb. Then followed in quick succession failures of other stock firms, and a wild panic ensued. Rumors of trouble in other houses and banks had the usual paralyzing effect, and induced bankers energetically to pursue such a course as would insure their own safety. In this emergency the Clearing-House Association was convened and measures taken for the relief of the banks which are referred to elsewhere. As the result of this action, the Metropolitan was enabled to resume business the next morning, but confidence in it was so far shaken that, notwithstanding a change of president, the bank gradually lost its business, and it went into liquidation six months later. The measures taken by the Clearing-House were effective, and the fact that the institutions of this city were thereby united as one materially aided in restoring confidence, and the panic, so far as the banks were concerned, speedily ended. The stock houses that were involved by the inability of their customers to respond to the demands for margin were forced to suspend, and bankers carrying deposits, who could not meet the demands of their creditors, made assignments. These failures, and those of banks and houses in the interior, continued to be reported almost daily for more than a week, and then less frequently for about a month, having more or less of an unsettling influence upon the market. The extremely low prices to which stocks fell during the week of the panic encouraged purchases for investment, but these were made cautiously, and they were not important enough in amount to do more than temporarily steady prices of the dividend-paying specialties. Stocks held by banks as collateral for loans were pressed upon the market when the demand for margins was not heeded, and frequently these sales gave color to reports that stock-houses or individual speculators were embarrassed. The bears early in June renewed their demonstrations, and the tendency was very decidedly downward for the remainder of the month, the most notable feature being a fall in Union Pacific, aided by the enforcement by the Government of the provisions of the Thurman act. The market became so largely oversold that the bulls, taking advantage of the circumstance, sharply advanced it on the 28th, causing a panic among the bears in their endeavor to cover their shorts. During July and August, with the assistance of powerful combinations, who made the most of the abundant present and prospective yield of the cereal crops, the market was pushed upward, but toward the close of the last-named month these cliques sold out, and left stocks in a languishing condition. The benefit of the enormous crops was to a large extent counteracted by the cutting of rates, and by disagreements in the various pools, and also by the unfavorable condition of the coal-trade, and the default by the Reading. The presidential canvass was intensely exciting in October, greatly interrupting business, and the dispute regarding the result had a depressing effect upon the market early in November, and until the question was definitely settled by the official announcement of the vote in this State. Then came a partial recovery, followed by an irregular decline, mainly due to the fact that Mr. Vanderbilt had sold a large amount of the stocks of roads with which he is identified, and also aided by the liquidation of the speculative pools in Delaware, Lackawanna, and Western, and other properties. There was no decided support to the market for the remainder of the year, which closed amid great depression.

Among the incidents which at the time of their occurrence influenced the stock speculation, may be mentioned the retirement of Mr. Henry Villard from the presidency of the Northern Pacific Railroad Company, early in January; the shipment of the almost unprecedented amount of $4,500,000 gold to Europe, March 8th; the panic in Chicago caused by the fall in wheat during the week ended April 5th; the suspension early in May of Mr. James R. Keene, owing to unfortunate speculations; the payment, May 12th, by order of Mr. Vanderbilt, of the Reading loan, for which 50,000 shares of Central New Jersey were pledged, and the sale early in October of this stock; the collapse, in May, of the Bankers' and Merchants' Telegraph enterprise, caused by the failure of Mr. Dimmock, its financial promoter; the unsuccessful stock-pool in Louisville and Nashville, which resulted in the resignation of Mr. C. C. Baldwin, the president, toward the close of May; the retirement, in June, from the presidency of the Union Pacific, of Mr. Sidney Dillon, who was succeeded by Mr. Charles F. Adams; the purchase, early in July, by the Missouri Pacific, of the June coupons of the Texas Pacific, New Orleans division, thus preventing actual default; the absorption, in July, by the Chicago and Northwestern, of the Blair system of roads, previously leased, and the issue of $14,757,500 common stock and $1,968,000 5 per cent. debenture bonds, and the assumption of $11,149,600 bonds and obligations; the failure of the Wall Street Bank, August 10th, caused by defalcations by the cashier; the issue of $10,000,000 debenture bonds by the New York Central, in August; and the retirement of Hon. H. J. Jewett, President of the Erie, who was succeeded, in October, by Mr. John King, Jr.

The total sales of all stocks for the year 1884 were 95,416,368 shares, against 96,037,905 in 1883, 118,720,665 in 1882, 118,392,685 in 1881, 97,200,000 in 1880, and 74,166,652 in 1879. The transactions in Government bonds during 1884 amounted to $14,939,700, and in State and railroad bonds to $508,815,850.

The following is a list of quotations of leading stocks on or about Jan. 1, 1883, 1884, and 1885:

	1883.	1884.	1885.
New York Central	126	112	86¾
Erie	38⅝	26⅛	14⅛
Lake Shore	112⅝	94⅜	61⅛
Michigan Central	98	85	55
Rock Island	126¼	116¼	105
Illinois Central	142⅝	132½	121¼
Northwestern, common	134¼	116½	84⅜
St. Paul, common	105⅛	92	70⅝
Delaware, Lackawanna, and Western	128¼	116⅛	88¾
Central New Jersey	69⅛	84⅜	39¾

The following is a list of some of the speculative stocks, with the prices which they brought some time during 1883, and those to which they fell in December, 1884, and in that year:

	Highest, 1883.	Dec., 1884, lowest.	Lowest, 1884.
Canada Southern	71¾	29	24½
Erie	40⅝	18⅜	11⅛
Louisville and Nashville	58⅛	24¼	22⅛
St. Paul	108⅛	69⅜	58⅝
Ohio Central	14½	1	1
Lake Erie and Western	28¼	8⅜	6⅝
Wabash	36¼	4½	4
Wabash, preferred	57⅛	12¼	9
Ohio and Mississippi	36¾	17⅝	14⅜
Texas and Pacific	48	12	5⅛
Western Union	88¼	58⅛	49
Indiana, Bloomington, and Western	85⅛	11	9
Missouri, Kansas, and Texas	84⅜	14¼	9⅛
Northern Pacific	58⅛	16	14
Northern Pacific, preferred	90⅛	88½	87½
Denver and Rio Grande	51⅛	8	6⅜
Nashville, Chattanooga, and St. Louis	64⅛	36	30
Memphis and Charleston	55	26	23
Richmond and Danville	72	48	33
Richmond and West Point Terminal	39	18	12
Chesapeake and Ohio	23¾	5¼	5
Chesapeake and Ohio, second preferred	27	7	6⅛
Oregon and Transcontinental	89	12	6¼
Oregon Railway and Navigation	150	69⅛	60⅛
Omaha	55	23	21¼
Omaha, preferred	118¼	88	80⅛
Missouri Pacific	106⅛	89⅛	63⅛
Union Pacific	104⅜	44⅛	28

FLORIDA. State Government.—The following were the State officers during the year: Governor, William D. Bloxham, Democrat; Lieutenant-Governor, L. W. Bethel; Secretary of State, John L. Crawford; Treasurer, Henry A. L. Engle; Comptroller, William D. Barnes; Attorney-General, George P. Raney; Superintendent of Public Instruction, Albert J. Russell; Commissioner of Lands and Immigration, P. W. White. Judiciary, Supreme Court: Chief-Justice, Edwin M. Randall; Associates, James D. Westcott, Jr., and R. B. Van Valkenburgh.

Finances.—The Governor, in his message to the Legislature of 1885, presenting the financial condition of the State, says:

> Florida has never occupied the high position that she does to-day in the financial world. Her Comptroller's warrants pass current in the banking institutions and moneyed marts of the country, the small amount of bonds she has outstanding in the hands of individuals are at a high premium, she has no floating debt, and cash in the treasury to meet all legitimate expenses. The total amount of warrants issued for 1883 was $251,075.85, and for 1884 $195,923.85, including $13,174 for the Deaf, Dumb, and Blind Asylum. The bonded debt of the State is as follows:

Seven per cent. bonds of 1871	$350,000	
Six per cent. bonds of 1878	925,000	
Convention bonds	1,500	
		$1,276,500
Deduct bonds of 1871 in sinking fund	$66,000	
Deduct bonds of 1878 in sinking fund	100,000	
		166,000
Bonds of 1871 and 1878		$1,110,500
Of which the school fund holds	$325,300	
Sinking fund holds	90,400	
Agricultural College fund holds	155,800	
		571,500
Leaving in the hands of individuals		$539,000
Showing a decrease of amount in hands of individuals during the past two years of $50,800. In addition to bonds of 1878 in sinking fund, the sinking fund for these bonds held in United States 4 per cent. bonds, market value		34,800
Leaving practically an outstanding bonded debt of		$524,200

The balance in the treasury Jan. 1, 1884, was $89,033.20; receipts during the year, $328,894.38; total, $417,927.58; payments, $274,950.38; balance, Jan. 1, 1885, $142,977.20.

> In accordance with the suggestions made in my message of January, 1883 (says the Governor), the Legislature reduced the State tax to four mills for that year, and authorized me, if the aggregate assessment of the property of the State would permit, to reduce the same to three mills for 1884. The "aggregate assessment of the property of the State" showing a large increase, the State tax was reduced to three mills for 1884. The taxable values for 1880, and several years prior, averaged about $31,000,000. Since 1880 these values have annually swollen, until 1884 they show an assessment of over $60,000,000.
>
> It is not the State tax that burdens the people. Unfortunately, some of the counties have outstanding obligations, some running back prior to the war, which have to be met by a heavy county tax. These, however, are gradually meeting their obligations, and in a few years, it is hoped, will be relieved.

The State tax in 1884 for general purposes was $204,896.72; for the school fund, $60,100.18; licenses, $113,317.61; county tax proper, $213,233.69; county school-tax, $200,342.91; county special tax, $168,963.04; total county tax, $582,539.64; net State tax, after deducting insolvencies, etc., $238,498.26.

The State now has 1,504 schools in operation, with an attendance of pupils of 58,311, an increase in each of 100 per cent. in the past eight years. The average daily attendance is 35,881; number of children between six and twenty-one years old, three counties missing, 66,798. The principal of the school fund, derived chiefly from the sale of lands known as the "sixteenth section," has increased in an unprecedented manner during the past four years. In his last message the Governor placed the school fund on hand Jan. 1, 1881, at $246,900. There were $9,000 of railroad bonds in the fund at that time, but as their validity or value had been questioned they were not included in the estimate. Since that period their value has been settled, and being added to the fund makes $255,900 as the principal of the school fund, which had slowly accumulated from 1845 up to Jan. 1, 1881. The increase in the past four years has been $220,284.20. This makes the total common-school fund $476,184.25, yielding an income of $27,314 annually, which is apportioned to the counties yearly.

Under the Agricultural College grant of Congress, Florida received 90,000 acres of land, which were sold for $81,000, and the proceeds of the sale were invested in $100,000 of Florida bonds. The interest has been invested, and the principal now amounts to $155,800, which produces an annual income of $9,227. The trustees of the fund located the college at Lake City. The building has been completed, and the college is now in operation.

The last Legislature passed an act to "provide an Institute for the Blind and Deaf and Dumb in this State," and designated the members of the State Board of Education and the Governor as a board of managers, who were directed to secure suitable grounds and buildings. The city of St. Augustine gave five acres of land, and $1,000 in money, to have the Institute located at that point. The location is admirably suited for such an asylum, and is healthful and accessible. The buildings, which are commodious and of handsome architectural design, are completed and ready for use.

The two seminaries, one at Gainesville and the other at Tallahassee, are in a prosperous condition, and are annually increasing the number of their pupils. They have now a fund of $91,400, producing an income of $5,568, which is divided semi-annually between the two.

A university has also been established at Tallahassee by the energy and liberality of Chancellor J. Kost; but it is still in its infancy.

> In this connection (remarks the Governor) I can but repeat what I said in a former message, that while popular education is a duty belonging to the respective States, and a matter of local policy which should be under the management of local government, yet, owing to the peculiar condition of the South, our resources are insufficient to furnish all the assistance

required for the education of our large illiterate population. The right of Congress to contribute to general education in the several States has not been questioned, and it is to be hoped that the General Government, appreciating the great necessity for such a course, will still further add to the educational resources of the country, to be applied through the agency of the various State organizations.

The following statement shows the number of miles of railroad and their value, together with the value of rolling-stock owned by the different companies, as assessed March 1, 1884.

Railroads.—In the past four years there have been built and put in operation 776 miles of new road. In addition to this about 224 miles are graded. Some of the best sections of the State are still without railroad facilities.

MILES OF MAIN TRACK.	NAME OF COMPANY.	Value of road-bed, including side and main track.	Value of rolling-stock.
12	St. John's and Halifax Railroad Company	$24,000 00	$2,900 00
8	Pensacola and Perdido Railroad Company..............	85,000 00	20,250 00
5$\frac{1}{2}$*	Pensacola and Mobile Railroad and Manufacturing Company...	17,917 00	....
48$\frac{24}{100}$	Louisville and Nashville Railroad Company	287,850 00	45,495 00
114	South Florida Railroad Company	589,275 06	185,700 00
6$\frac{4}{10}$†	Sanford and Indian River Railroad Company	19,842 50	....
160$\frac{1}{2}$	Pensacola and Atlantic Railroad Company..............	1,815,400 00	62,199 51
120$\frac{1}{100}$	Florida Southern Railway Company..............	609,099 05	52,300 35
86	St. John's and Lake Eustis Railway Company	108,750 00	12,450 00
495$\frac{37}{100}$	Florida Railway and Navigation Company	3,892,590 00	250,275 80
84$\frac{38}{100}$	Jacksonville, St. Augustine, and Halifax River Railroad Co....	171,625 00	88,080 00
55$\frac{1}{2}$	Jacksonville, Tampa, and Key West Railroad Company	440,000 00	....
22$\frac{55}{100}$	Savannah, Florida, and Western Railroad Company..............	185,756 00	....
83$\frac{84}{100}$‡	East Florida Railway Company..............	328,672 00	....
23$\frac{19}{100}$‡	Live Oak and Rowlands Bluff Railroad Company..............	198,156 00	....
4$\frac{7}{10}$‡	Chattahoochee and East Pass Railroad Company	30,276 00	....
10	Green Cove Springs and Melrose Railroad Company	25,000 00	5,500 00
14$\frac{1}{2}$	St. John's Railway Company..............	45,000 00	8,100 00
2$\frac{1}{2}$	Jacksonville Street Railroad Company	5,470 00	5,000 00
1,207$\frac{71}{100}$..............		$7,824,178 61	$633,250 00
	Total assessed value of road and rolling-stock		$8,457,429 57

* Operated by the Louisville and Nashville Railroad Company.
† Operated by the South Florida Railroad Company.
‡ Operated by the Savannah, Florida, and Western Railroad Company; they made no return of rolling-stock.

Reclamation of Lands.—The Atlantic and Gulf Coast Canal and Okeechobee Company, under their contract with the State for the reclamation of lands in the southern portion of the Peninsula, since 1881 have steadily prosecuted the work of constructing drainage-canals, and improving the natural river-system, and have added mechanical appliances by which the completion of the work will be materially hastened. A brief summary of the operations of this company shows a completed canal for drainage and navigation, connecting the head-waters of the Caloosahatchee and Okeechobee, intercepting in its course Lakes Flirt and Hecppachee, the latter being a fre.' water lake about five miles in diameter, hitherto practically unknown. This canal penetrates a portion of the State hitherto inaccessible and develops a large territory. The ledge of limestone through which Caloosahatchee river at Fort Thompson forces its way has been sufficiently removed to provide a channel commensurate with the demands of navigation. The company is engaged in shortening Kissimmee river, much effective work having already been accomplished. In some instances cuts of less than one fourth of a mile reduced the distance by the old river-channel almost three miles. Tiger creek, connecting Lake Kissimmee with Lakes Tiger, Rosalie, and Walk-in-the-Water, on the west, has been shortened, deepened, and improved. The water-shed of the upper system of drainage has been permanently relieved by the completion of a canal connecting Lake Tohopekaliga with the drainage-system south. This canal is supplementary to the large cut, long since completed in Lake Cypress, by which the surface-level of Lake Tohopekaliga, an area of 26 square miles, was reduced many feet. The surface of the waters in the valley of this interior tidal and lake system varies from twenty-two feet at Lake Okeechobee to seventy-one feet at Lake Tohopekaliga above river-level, indicating that the most depressed portion of the territory is sufficiently elevated for an efficient drainage of the whole. The work already accomplished has opened up water-transportation for boats of about 100 feet in length, connecting Punta Rosa, at the mouth of Caloosahatchee river, on the Gulf, with Kissimmee City, a point about centrally located in the peninsular portion of the State. Over 40 miles of canal and river improvements have been made, besides the removal of numerous obstructions. The expenditure has aggregated over $250,000.

The magnitude of this enterprise (says the Governor) and its destined influence upon the future of the State can scarcely be realized. The reclamation of many millions of acres, containing some of the most valuable sugar-lands in the United States, with suitable climatic conditions for the successful growth of all tropical fruits, is the harbinger of an era of population, wealth, and prosperity.

Coast-Line Canal.—The Florida Coast-Line Canal and Transportation Company, organized to secure inland water communication from St. Augustine to Biscayne Bay, by connecting Matansas, Halifax, and Indian rivers, on the eastern coast, is prosecuting its work. The entire force has been concentrated on the work required to connect Matansas and Halifax rivers. There has been constructed, of canal six feet deep and thirty feet wide, and improvements of rivers, lagoons, and creeks to the same depth, about 40 miles, leaving still a gap of 14 miles, including Smith's creek, the ridge between Matansas and Halifax rivers, about three quarters of a mile, and a small portion of prairie. It is estimated that this work will be completed by the autumn of 1885, and steamers will then transport passengers and freight to and from St. Augustine, and the towns and settlements on Halifax and Hillsborough rivers. By spring or early summer, work will begin on the "Haulover," thus connecting Indian river, and insuring a transportation line between St. Augustine and Lake Worth, or Jupiter Inlet, 220 miles.

Asylum for the Insane.—During the past two years large alterations and additions have been made to some of the buildings of this institution. In January, 1881, there were 95 inmates; in January, 1883, 130; and at present 157. In addition, 50 are supported by the State at their homes, making a total of 207.

Convicts.—With regard to these, the Governor gives the following information:

> They have been well fed and cared for, and have had proper medical attention and the services of a chaplain. The Adjutant-General, under the direction of the Commissioners of State Institutions, advertised for bids for the hire of the convicts for the next two years. No bids were received, and we were threatened with having them to support and guard, in addition to the expense of conveying those hereafter convicted, from the county jails to some point where we would be compelled to locate a camp. We have no penitentiary, and would have had to go to the expense of erecting suitable buildings, grounds, etc., for their safety. The expense of buildings, their support and guard, and transportation from the various county jails, would have been an enormous expense. Under these circumstances, it was deemed to the best interest of the State to accept Mr. H. M. Wood's offer of taking said convicts now on hand, and all others to be convicted, at the several jails, and allow him $8,500 for the year, he to bear all expenses. This contract is for one year only, and gives time to the State officials to ascertain what better disposition can be made of them.

Number of convicts Jan. 1, 1884		162
Delivered to contractor during 1884		129
Of this number there were in 1884:		
Discharged	85	
Died	5	
Pardoned	3	
Escapes	5	
Number on hand Jan. 1, 1885	193	
Total	291	

Lands.—The following are the lands belonging to the State, Jan. 1, 1885, approximately: Swamp-lands, 5,367,206 acres; internal improvement lands, 167,330; school lands, 509,600; seminary lands, 32,140. Other lands are due the State under the act of Sept. 28, 1850.

Political.—The Democratic State Convention met in Pensacola on June 25, chose delegates to the National Convention, and nominated candidates for Governor, Lieutenant-Governor, and presidential electors. Among the resolutions passed were the following:

> That we advocate a liberal policy on the part of the General Government in the matter of public improvements, and hold that the South has a right to demand this until her water-ways and harbors are adjusted to the needs of commerce to the same extent as other sections of the country.
>
> That we favor the calling of a Constitutional Convention for the reformation of our present Constitution.
>
> That it is the duty of the State to educate its children, and that we favor a liberal provision for the maintenance and development of our system of free public schools.
>
> That the recent remarkable growth of our population is one of the most noteworthy indications of the prosperity of the State, and that we invite worthy and industrious persons from all quarters to come and settle among us, with the confident assurance of a friendly welcome and an equal opportunity.

For Governor, Edward A. Perry was nominated, and for Lieutenant-Governor, Milton H. Mabry. The nominee for Governor is a native of Massachusetts, who settled in Pensacola when a young man, where he practiced law before and after the war. During the war he rose to the rank of brigadier-general in the Confederate service. The Democratic candidates for Congress were Robert H. M. Davidson in the first district, and Charles Dougherty in the second.

A Republican State Convention met in St. Augustine on April 30, and chose delegates to the National Convention. The following resolution was among those adopted:

> That we heartily sympathize with all classes of citizens in this State who are opposed to the present Bourbon administration, and trust that by mutual cooperation its speedy overthrow may be accomplished.

Another Republican State Convention was held in Tallahassee on July 24, which ratified the nominations for State officers of the "Independent" conference previously held at Live Oak. The nominee for Governor was F. W. Poke. The St. Augustine convention had been preceded by an "Independent Republican" conference at Gainesville. On Nov. 4, the Republican candidates for presidential electors received 28,031 votes; Democratic, 31,766; scattering, 164. For Governor, the Democratic vote (Brevard and Dade counties wanting), was 31,830; Independent, 27,744. Two Democratic Congressmen were chosen. The Legislature, to meet in 1885, consists of 7 Republicans, 17 Democrats, and 8 Independents in the Senate, and 25 Republicans, 48 Democrats, and 3 Independents in the House. A majority of the voters pronounced in favor of a constitutional convention, which will be provided for by the Legislature of 1885.

Temperance.—On the call of the Orange County Local Option Alliance, a convention of all interested in temperance reform and maintaining the principle of the local-option law was convened on July 4, in the Court-House at Palatka. About fifty delegates were present from the leading temperance organizations, representing nearly 1,000 members. The delegates agreed to the formation of an organization to be called "The Florida State Temperance Association," and adopted the following resolutions:

> That the friends of temperance reform in the State of Florida are earnestly requested to establish county, town, and city organizations in sympathy with this State organization, and report to the corresponding secretary, whereupon they shall be considered as forming a part of this Association.
>
> That the members of this Association can not conscientiously, nor will they in any case, support candidates for public office, who will not sustain the local-option law.

FOLGER, CHARLES JAMES, an American jurist, born in Nantucket, Mass., April 16, 1818; died in Geneva, N. Y., September 4, 1884. In 1830 his father and family removed from Nantucket to Geneva, which place became his home for life. He early manifested a love for books and study, entered Geneva (now Hobart) College at an unusually early age, and was graduated in 1836 with the highest class honors. He studied law with Messrs. Worden & Sibley, in Geneva, and was admitted to the bar in 1839. His first office was that of justice of the peace in his place of residence. He was appointed Judge of the Court of Common Pleas in 1844, and soon after was made Master and Examiner in Chancery. In 1851 he was elected County Judge of Ontario County.

He entered upon political life in the ranks of the Democratic party, being one of those known at the time as Silas Wright Democrats. In 1861, however, he was elected to the New York State Senate by the Republican party. This office he filled with signal ability for eight years, and was regarded as one of the leaders of the party. In the Constitutional Convention of 1867 he served on the Judiciary Committee. He was a warm personal friend of Senator Conkling, through whose influence he was appointed, in 1869, by President Grant, to the office of United States Treasurer in New York city. A year later he was elected one of the Judges of the Court of Appeals for the State of New York, and on the death of Chief-Justice Church, in 1880, he was designated by Governor Cornell to act as Chief-Justice, and in November of that year he was elected by a majority of over 45,000 for the full term of fourteen years in the highest court of the State.

Judge Folger resigned his seat in the Court of Appeals to accept President Arthur's appointment of him, in 1881, as Secretary of the Treasury. In 1882 the Republican Convention nominated him for Governor of New York, but he was defeated by an overwhelming majority, because it was believed that the national Administration had practically dictated the nomination, and used unfair means in the convention. He took his defeat so much to heart that, in the opinion of those who knew him well, his health was seriously affected, and thereafter he steadily declined.

As a member of the Cabinet at Washington, Secretary Folger proved himself to be a wise and judicious adviser, as well as an able and efficient head of the department over which he presided. He was a man of solid rather than brilliant qualities. He possessed in large degree the judicial faculty, was a man of extensive attainments in his profession, and held the confidence of the country as a citizen of undoubted integrity and faithfulness. He continued at work up to the last; but within a few days of his death he sank so rapidly that his passing away took his friends and the community quite by surprise.

(See portrait in "Annual Cyclopædia" for 1882, page 807.)

FRANCE, a republic in western Europe. The republic was proclaimed Sept. 4, 1870. The Constitution was adopted Feb. 25, 1875, by the National Assembly elected in 1871. The Chamber of Deputies is elected by universal suffrage under the *scrutin d'arrondissement,* which was adopted Nov. 11, 1875. Each arrondissement is represented by a deputy, and, if its population is in excess of 100,000, by additional deputies for each 100,000 or part of 100,000 beyond that number. The number of electors in 1881 was 10,179,345. The number of deputies is 557. The Senate is composed of 300 members, 75 of whom are chosen for life, the Senate electing the successors of deceased members. The remaining 225 are elected, 75 every three years, by the departments and provinces. They are chosen by senatorial electors, elected to represent each of the communes and municipalities, together with the members of the Council General and the deputies of the department, who possess votes *ex-officio.* The Chamber of Deputies is elected for four years. The National Assembly meets annually on the second Tuesday in January, and must remain in session five months. The President of the Republic can call an extraordinary session, and is compelled to do so if one half of the members of each Chamber unite in demanding it. The two Chambers possess equal and concurrent powers of legislation; but all financial measures must originate in the Chamber of Deputies. The executive head of the republic is the President, who is elected for the term of seven years by a majority of the deputies and senators in joint session. The President has the disposal of the military forces, makes all appointments, civil and military, and can propose legislation; but all acts must be countersigned by the ministers, who are appointed by the President and are responsible to the Chambers.

The Government.—The President of the Republic is François P. Jules Grévy, born in 1813, who was a member of the Constituent Assembly of 1848, President of the Assembly from 1871 to 1873, and President of the Chamber of Deputies from 1876 to 1879; elected Jan. 30, 1879.

The ministry, constituted Feb. 21, 1883, is composed as follows: President of the Council and Minister of Foreign Affairs, Jules Ferry; Keeper of the Seals, and Minister of Justice and of Worship, Martin Feuillée; Minister of Public Instruction and of Fine Arts, Fallières; Minister of the Interior, M. Waldeck Rousseau; Minister of Finance, M. Rouvier; Minister of War, Gen. Campenon; Minister of Marine and the Colonies, Vice-Admiral Peyron; Minister of Public Works, M. Raynal; Minister of Commerce, Fournier; Minister of Agriculture, F. J. Méline; Minister of Posts and Telegraphs, M. Cochéry.

The President of the Senate is M. Le Royer; the President of the Chamber of Deputies is Henri Brisson.

Area and Population.—The area of France is 528,571 square kilometres. The legal population in 1881 was 37,672,048—71 to the square kilometre. The population present at the time of the census was 37,405,290, of which number 18,656,518 were of the male and 18,748,772 of the female sex.

The population was distributed among the various professional groups as follows: Agriculture, 18,204,799; industry, 9,324,107; commerce, 3,843,447; transportation and navigation, 800,741; the public service, 552,851; the liberal professions, 1,629,768; living exclusively from their incomes, 2,148,173; without occupation, 727,588; unknown, 173,816.

The population was divided as to religion in 1872 as follows: Catholics, 35,387,703; Protestants, 580,757 (467,531 Calvinists, 80,117 Lutherans, and 33,109 of other Protestant denominations); Israelites, 49,439; of other non-Christian faiths, 3,071; of no religion or whose religion was not ascertained, 81,951. The Catholics constituted 98 per cent. of the population, the Protestants 1·6 per cent., the Jews ·01 per cent., individuals without religion ·02 per cent. The Protestants formed more than 10 per cent. of the population in the departments of Drôme, Doubs, Deux-Sèvres, Ardèche, Lozère, and Gard.

The movement of population for the last five years reported was as follows:

YEAR.	Marriages.	Births.	Deaths.	Excess of births.
1878.....	279.650	980,590	882,349	98,241
1879.....	282,776	980,404	883,757	96,647
1880.....	279,046	961,914	899,974	61,940
1881.....	282,079	980,898	872,669	108,229
1882.....	281,060	979,918	882,891	97,027
1883.....	284,519	981,691	884,848	96,843

The population of Paris in 1881 was 2,269,023. The following other cities contained more than 50,000 inhabitants: Lyons, 347,619; Marseilles, 269,340; Bordeaux, 217.990; Lille, 145,113; Toulouse, 127,196; Nantes, 117,556; St. Etienne, 114,962; Rouen, 105,860; Havre, 105,540; Rheims, 93,683; Roubaix, 79,706; Nancy, 73,208; Brest, 69,110; Amiens, 67,874; Angers, 65,331; Toulon, 61,239; Nîmes, 61,210; Limoges, 59,338; Rennes, 57,430; Nice, 54,953; Orleans, 54,400; Montpellier, 52,672; Tours, 52,209; Dijon, 52,115.

Commerce.—The special commerce of France, which comprises all imports free of duty, and those on which duty has been paid, and all the domestic exports and foreign exports that have paid duties, is distinguished in the official returns from the general commerce which embraces also the transit-trade. The special imports averaged 1,071,100,000 francs, and the exports 1,223,700,000 francs, in the decade 1847–'56; the imports 2,200,500,000, and the exports 2,430,100,000 francs, in 1857–'66; the imports 3,407,500,000, and the exports 3,306,400,000 francs, in 1867–'76. In 1877 the imports were 3,369,800,000, and the exports 3,436,300,000 francs; in 1878, imports 4,176,200,000, exports 3,179,700,000 francs; in 1879, imports 4,595,200,000, exports 3,231,300,000 francs; in 1880, imports 5,033,200,000, exports 3,467,900,000 francs; in 1881, imports 4,946,400,000, exports 2,612,400,000 francs; in 1882, imports 4,972,100,000 francs, exports 3,596,200,000 francs; in 1883, imports 4,994,300,000, exports 3,524,900,000 francs.

In 1880, 3,211,100,000 francs of the import and 2,512,300,000 francs of the export trade was with European countries—England furnishing 663,500,000 francs of the imports and receiving 910,600,000 of the exports; Belgium furnishing 457,400,000 francs of the imports and receiving 465,000,000 francs of the exports; Italy furnishing 398,300,000 francs of the imports and receiving 181,300,000 francs of the exports; Germany furnishing 438,200,000 francs of the imports and receiving 362,900,000 francs of the exports; Switzerland furnishing 115,100,000 francs of the imports and receiving 220,400,000 francs of the exports; Spain furnishing 343,200,000 francs of the imports and receiving 158,700,000 francs of the exports; and Russia, Austria, and Turkey furnishing respectively 314,100,000, 124,100,000, and 133,500,000 francs of the imports. The total import trade with North and South America was 1,116,500,000 francs, 207,400,000 coming from the United States, 69,100,000 from Brazil, and 67,200,000 from the Argentine Republic; the total exports to America, 650,000,000 francs, of which the United States took 332,100,000, the Argentine Republic 84,600,000, and Brazil 76,200,000 francs. The imports from Asia amounted to 318,500,000 francs, from Africa 124,200,000, from other countries 23,400,000 francs; the exports to Asia 17,000,000, to Africa 60,100,000, to other countries 8,900,000. The total value of the imports from foreign countries was 4,788,700,000 francs, of the exports to foreign countries 3,248,000,000 francs. The imports from Algeria were 126,900,000 francs in value, the exports to Algeria 161,800,000 francs; the imports from all the colonies 244,500,000, the exports to all the colonies 219,600,000 francs.

The imports of cereals in 1883 were of the value of 500,558,000 francs, of fermented liquors, 410,799,000 francs, of colonial goods 260,641,000 francs, of tobacco 29,455,000, of fruits, seeds, and roots 265,847,000 francs, of animals and animal food products 898,259,000 francs, total imports of articles of consumption 1,865,559,000 francs; the exports of fermented liquors 313,487,000 francs, of animals and provisions 275,985,000 francs, of colonial goods 132,837,000 francs, and the total exports of articles of consumption 917,750,000 francs. The imports of textile materials amounted to 989,990,000 francs, of timber, etc., 248,508,000 francs, of hides and leather 242,378,000, the total imports of raw materials 1,935,106,000 francs; the exports of textile materials 319,659,000 francs, of hides and leather 217,101,000 francs, of all raw materials 610,842,000 francs. The imports of textile manufactures were 260,377,000 francs, of metal wares and machinery 162,245,000 francs, of all manufactured articles 571,865,000 francs; the exports of textile manufactures 930,986,000 francs, of hardware and machinery 166,752,000 francs, of jewelry and art manufactures 143,193,000 francs, of leather and fur manufactures 141,541,000, of all manufactured articles 1,626,785,000 francs; the imports of miscellaneous articles 621,726,000, the exports 369,517,000 francs. The import of specie in 1883 amounted to 148,200,000 francs, the export to 236,200,000 francs.

Navigation.—The number of vessels entered at French ports in 1883 was 34,085, the tonnage 13,238,103, against 12,443,231 tons in 1882; the number sailing under the French flag 9,654, tonnage 4,461,886. The total number cleared was 23,663, tonnage 8,798,726, against 7,886,608 tons in 1882.

The merchant navy at the end of 1880 consisted of 14,406 sailing-vessels, of 641,539 tons, and 652 steamers, of 277,759 tons, employing altogether 92,379 persons. There were 9,987 vessels engaged in the fisheries, 2,399 in the coasting trade, 1,743 in ocean commerce, and 929 in port service or yachts.

Railroads.—The total length of lines open to traffic in 1883 was 28,804,000 kilometres, of which 26,287 kilometres were lines of general interest, 2,084 kilometres of these belonging to the state, 1,921 kilometres were lines not chartered, 2,305 kilometres were lines of local interest, and 212 kilometres were industrial lines.

The Post-Office.—The number of stations in 1881 was 6,158; the number of letters in 1883 was 605,761,089, postal-cards 34,564,536, letters with declaration of value 14,918,724, newspapers, circulars, etc., 728,534,985. The receipts in 1881 were 123,472,000 francs, expenses 81,898,988 francs.

Telegraphs.—The number of stations in 1882 was 4,373; the length of the state lines 75,091, of wires 232,451 kilometres. The number of messages forwarded in 1883 was 26,174,547, of which 22,006,765 were domestic and 4,167,782 international.

The Colonies.—The following table exhibits the area of the French colonies and protectorates, their population in 1881, the births and deaths in 1880, as far as reported, the commerce in 1881, and the colonial budgets for 1884 of some of the colonies:

DEPENDENCIES.	Area, square kilometres.	Population.	Births.	Deaths.	Imports.	Exports.	Expenditures.
					Francs.	Francs.	Francs.
IN ASIA:							
French East Indies	508	271,568	9,861	7,772	6,556,000	17,789,000	2,170,000
French Cochin-China	71,460	1,598,517	26,751	19,007	41,400,000	54,295,000	24,950,000
Tonquin	165,200	15,000,000	....	....	....	....	....
Cambodia	83,861	1,500,000	....	....	....	....	....
IN AFRICA:							
Senegal and dependencies	250,000	191,608	5,982	5,822	19.724,000	25,463,000	2,506,000
Gold Coast and Gaboon	2,800	3,000	....	....	7,000,000	1,412,000	421,000
Obok	495	.....	....	....	....	....	....
Réunion	2,511	172,084	4,728	6,606	28,078,000	23,578,000	4.918,000
Mayotte	866	10,800	....	....	1,070,000	2.304,000	246,000
Nossi-Bé and Ste. Marie	293	16,188	....	....	4,001,000	8,823,000	270,000
IN AMERICA:							
French Guiana	121,413	27,335	456	870	9,179,000	844,000	2,123,000
Martinique	987	167,131	5,447	4,810	26,789,000	31,686,000	4,598,000
Guadaloupe and dependencies	1,870	200,771	4,377	6,171	25,886,000	31,810,000	5,112,000
St. Pierre and Miquelon	235	5,534	173	82	8,954,000	9,975,000	823,000
IN OCEANICA:							
New Caledonia and dependencies	19,950	68,584	....	....	....	....	2,058,000
Tahiti and dependencies	18,658	26,000	....	....	4,806,000	3,578,000	1,267,000
Total	725,600	19,259,170	....	....	....	....	50,949,000

Algeria.—The area of Algeria is 667,065 square kilometres. The area of the three departments of Algiers, Oran, and Constantine is 318,334 square kilometres. Their population in 1881 was 3,310,412. The population comprised 233,937 French, 35,665 naturalized Israelites, 2,850,866 native Mussulmans, and 189,944 foreigners; of the latter number 114,320 were Spaniards, 33,693 Italians, 15,402 English and Maltese, 4,201 Germans, and 22,828 of other nationalities. The population of the principal towns in 1881 was as follows: Algiers, 70,747; Oran, 58,530; Constantine, 38,879. The births in 1882 were 14,018 in number, the deaths 11,740. The net immigration in 1880 was 17,486.

The receipts of the Treasury in 1883 amounted to 34,650,100 francs, the disbursements to 38,267,424 francs, including 3,879,000 francs of extraordinary expenditure.

The general commerce in 1882 amounted to 411,900,000 francs of imports, and 150,000,000 francs of exports, against 342,300,000 francs of imports and 143,600,000 francs of exports in 1881. Three quarters of the import trade and more than half of the export trade were with France.

The length of railroads in operation in the beginning of 1883 was 1,737 kilometres, not including 206 kilometres on Tunisian territory; the length of telegraph lines, 5,832 kilometres; of wires, 13,885 kilometres.

Tunis.—By the treaty of Kasr-el-Said, concluded May 12, 1881, a French protectorate was instituted in Tunis. Decrees for the execution of the treaty were issued April 22, 1882. The Bey is Sidi Ali Pasha, who succeeded his brother, Sidi Mohammed, Oct. 28, 1882.

The area of the regency of Tunis is 116,348 square kilometres. The population is about 1,500,000, of whom 45,000 are Israelites, 25,100 Catholics, 400 Greek Catholics, 100 Protestants, and the rest Mohammedans. Tunis, the capital, contains about 125,000 inhabitants.

The receipts of the Treasury in 1882 amounted to 13,904,444 francs, the expenditures to 15,304,444 francs. The consolidated debt is about 125,000,000 francs in amount, the floating debt 17,550,000. A decree was issued by the Bey, May 27, 1884, and a law enacted by the French Chambers, June 8, 1884, regulating the conversion and amortizement of the Tunisian debt in accordance with the convention of June 8, 1883. The Tunisian army has been disbanded, and mixed companies are in the process of formation. The value of the imports in 1883 was 46,153,954 piasters, of the exports 33,870,967 piasters (one piaster=11·8 cents). Olive-oil constituted more than two thirds of the total exports, the other articles being esparto-grass, olives, sponges, dates, leather, wax, wool, fez, etc. The length of railroads in 1882 was 245 kilometres, of telegraph lines 4,000 kilometres.

Annam.—By the treaty of Aug. 21, 1883, confirmed and completed by the convention of June 6, 1884, the kingdom of Annam acknowledged the protectorate of France, which henceforth will represent it in its external relations. The Annamite functionaries continue to administer the provinces under the supervision of the French authorities, excepting in the departments of the customs and public works and in services which require a single head or the employment of European agents or engineers. Annamites in foreign countries are placed under the protection of France. Thou-an, the port of Hué, receives a French garrison. Besides the port of Quinbone, the ports of Tourane and Huan-day are to be opened.

The kingdom of Annam, exclusive of the province of Tonquin ceded to France, comprises Cochin-China, without the six provinces of Lower Cochin-China annexed to France, and Tsiampa, also the tributary Laos states and the territory of the independent Moi tribes. The area is about 263,800 square kilometres, the population about 6,000,000. The capital, Hué, contains 30,000 inhabitants, or with its suburbs 50,000. The religion of the mass of the population is a worship of tutelary divinities; the educated classes are believers in the doctrines of Confucius. Buddhism is also tolerated. There are in the neighborhood of 420,000 Christians under six Roman Catholic bishops.

The value of the commerce of Haiphong in 1881 was 2,171,428 taels. The principal articles of export were silks, raw silk, lac, tin, medicines, cotton, edible fungi, oil of aniseseed, etc. The leading imports were cotton, yarn, shoes, iron, Chinese pottery, mirrors, opium, potatoes, petroleum, etc. Commercial intercourse exists only with China.

The Army.—By the recruiting law of July 27, 1872, personal military service is declared obligatory on all Frenchmen capable of bearing arms for five years in the active army, four in the active army reserve, five in the territorial army, and six in the territorial army reserve. The effective in 1884 was as follows: Infantry of the line, 238,464 men; *chasseurs à pied*, 18,130; zouaves, 10,480; Algerian *tirailleurs*, 8,493; the Foreign Legion, 3,750; African light infantry, 4,140; drill companies, 1,330; total infantry, 284,787 officers and men, with 3,287 horses. Cuirassiers dragoons, chasseurs, and hussars, 58,240 men; *chasseurs d'Afrique*, 4,152; *spahis*, 3,292; remount companies, 3,038; total cavalry, 68,722, with 61,692 horses. Mounted artillery, 228 batteries, 25,422 men, and 14,307 horses; mounted and flying artillery, 152 batteries of the former and 57 of the latter, 23,503 men and 14,644 horses; foot artillery, 96 batteries, 18,104 men; artillery pontonniers, 3,014 men; musicians and artificers, 2,945 men; 12 detached batteries in Africa, 2,391 men; total artillery, 70,379 men, with 31,059 horses. Engineers, 11,007 men. Train, 11,696 men, with 9,918 horses. Mixed corps of Frenchmen and natives in Tunis and Tonquin, 8,664 men. Staff and administration, 28,567. Gendarmerie, 26,511 men, with 13,013 horses. Total effective of the active army, 510,333 men and 124,989 horses. The infantry are armed with the Gras rifle, a kind of Chassepôt with metallic cartridges. The cuirassiers carry revolvers, the other cavalry regiments muskets. The field artillery has breech-loading cannon of cast-steel, 80 and 90 millimetres thick.

The present organization permits of putting into the field 24 complete army corps in the first line and 8 in the second line, besides about 1,330,000 men exempted or employed in the auxiliary services and without military instruction, who would bring the total war effective up to 3,753,164 men. The active and territorial armies have on their lists the following numbers: active army, 704,714 men; active army reserve, 510,294 men; territorial army, 582,523 men; territorial reserve, 625,633 men; total, 2,423,164 men. Their present strength is approximately 1,272,400 infantry, 88,472 cavalry, 180,000 artillery, 45,000 engineers, and 5,000 pontonniers, in all 1,590,878 men, or, with the train, administrative and sanitary corps, etc., about 1,800,000 men.

The Navy.—In the beginning of 1883 France possessed 32 large battle-ships, of which 20 were ironclads of the first rank, and 12 of the second rank; 27 vessels for coast-defense, 16 of them coast-guards, and 11 floating batteries; 57 cruisers of the first, second, and third classes; 17 avisos; 10 screw and 12 paddle fleet avisos; 21 gunboats of the first and second classes; 61 transports; 26 small gunboats, and 31 torpedo-boats; and 62 sailing-vessels. There were on the stocks 8 ironclads of the first class and 2 of the second, 3 coast-guards, 2 armored gunboats, 6 cruisers, 2 avisos, 3 screw and 6 paddle-wheel fleet dispatch-boats, 5 transports, and 11 torpedo-boats. The navy is manned by 1,590 officers and 41,227 men, not including 3,940 in the auxiliary services, 18,770 marine infantry, 4,661 marine artillery, etc. The period of service is five years in the active service, and four in the reserve.

Finances.—The ordinary budget of 1882 showed a deficit of 30,414,080 francs, and that of 1883 one of 46,125,100 francs. During the period from 1870 to 1883 the normal receipts exceeded the normal expenditures by 364,812,751 francs, but the expenditures, on account of the surplus, exceeded this amount by 2,004,276 francs. The accounts of 1884 have not been made up. The budget for 1885 places the expenditures under the principal heads at the following amounts:

EXPENDITURES.	Francs.
Public debt	1,277,107,953
Dotations	36,179,411
Legislature	11,891,780
Justice	33,944,400
Public Worship	51,095,066
Ministry of Foreign Affairs	14,388,900
Ministry of Interior	70,551,989
Ministry of Finance	20,145,970
Ministry of Posts and Telegraphs	3,085,485
Ministry of War	596,806,230
Ministry of Marine and the Colonies	234,420,305
Ministry of Instruction and Art	158,251,328
Ministry of Commerce	18,938,998
Ministry of Agriculture	25,459,090
Ministry of Public Works	136,602,378
Administration and collection	339,140,911
Restitutions	20,860,000
Total ordinary expenditures	3,048,544,744
Expenditures from extraordinary resources	208,121,818
Total expenditures	3,256,666,562

The receipts of 1885 are estimated in the budget as follow:

RECEIPTS.	Francs.
Land-tax	177,500,000
Personal property and head taxes	67,892,000
Door and window tax	45,972,000
Patents	104,836,600
Other direct taxes	607,800
Royalties, succession-dues, fees, carriage-tax, etc.	26,956,890
Direct and special taxes of Algeria	8,115,974
Registration, stamps, and domains	738,015,100
Forests	35,640,984
Customs and salt-duty	319,949,000
Excise duties	1,207,920,000

RECEIPTS (BROUGHT FORWARD).	Francs.
Receipts of the Post-Office	140,761,000
Telegraph receipts	32,091,000
Tax on income from personal property	50,124,000
University	3,857,447
Fines	3,918,265
Civil pension deductions	22,545,855
Miscellaneous receipts	57,466,382
Total ordinary receipts	3,048,720,927
Receipts from extraordinary resources	208,121,818
Total receipts	3,256,842,745

The expenditures, on account of the public debt for 1885, are set down as 1,277,107,053 francs, including pensions, indemnities, etc. The new 4½ per cent. rentes amount to 305,540,359 francs; the old 4½ per cents., 37,433,284 francs; 4 per cents., 446,096 francs; 3 per cents, 362,697,128 francs; interest and amortizement of the capital of the budget of extraordinary resources, 258,005,000 francs; other terminable debts, 146,583,451 francs; military pensions, 84,376,000 francs; civil pensions, 57,983,000 francs; other pensions and annuities, 24,042,735 francs.

The Tonquin and Formosa Campaigns.—The military action of France in the East (see CHINA and TONQUIN) awakened little enthusiasm at home. Only on the occasions of important military or diplomatic events did the public show much excitement. The Government was sure of the support of its regular majority. The Monarchists approved vigorous action, while the Radical groups opposed the Tonquin policy of the Government altogether. After the Bac Le affair, which was portrayed as a treacherous ambuscade, subsequent to the conclusion of a formal peace, the people were generally in favor of reprisals, provided the finances of the military organization were not weakened. After the bombardment of Foochow, they would have been satisfied at the conclusion of peace. The continuation of hostilities outside of Tonquin seemed due to a hope of gaining possession of the fertile island of Formosa, with its coal-mines and harbors. The Chamber was always willing to vote the credits demanded. The majority was in favor of pursuing the operations with more vigor. A difference arose between the other members of the Cabinet and Gen. Campenon, who declared that the French army could not spare more than 6,000 men without jeoparding its mobilization. To meet the difficulty, he proposed the formation of a new colonial army, which would release the regular troops in Algeria and furnish 15,000 men as a second reserve for distant expeditions. The scheme would cost 9,000,000 francs the first year and 5,500,000 in subsequent years. When the Government had increased the force in Tonquin to about 18,000 men by enlisting volunteers and sending Algerian troops, it was considered dangerous to call for more volunteers. A final vote of confidence in the colonial policy of the Government was given Nov. 28, and a credit of 60,000,000 francs was voted.

The Protectorate in Tunis.—The capitulations having been done away with, and the debt assumed by the republic, nothing stood in the way of the complete establishment of the protectorate. With the conversion of the debt, the International Financial Commission ceased to exist. A decree was signed by President Grévy, Oct. 4, creating a staff of French civilian controllers, who are responsible to the French Government. The administration of the country is to remain in native hands under a permanent supervision by French officials. The conversion of the debt was intrusted to leading financial establishments in France. The 315,000 bonds were exchanged for others of the nominal value of 500 francs, issued at 462 francs, and bearing interest at 4 per cent. Great Britain objected to the abolition of the capitulations, but agreed before the 1st of January, 1884, to yield up the right of consular jurisdiction, while maintaining the financial capitulations that limit the duties on imports to 8 per cent. ad valorem. Germany, Austria, and Italy waited for the action of England, and signified their acquiescence as soon as she withdrew her opposition.

France and Morocco.— The independence of Morocco was guaranteed by the powers in a conference held in 1880 at Madrid. In France complaints have been made that the boundary regulation between Algeria and Morocco, confirmed in the treaty of March 18, 1845, was not satisfactory. In 1884 the French Government took under its protection the Sherif of Wazan, who was in conflict with the Sultan of Morocco, and who possesses great influence and leads a numerous sect. This act awakened distrust in London and Madrid, and led to a demand for explanations. The French Government replied that its relations with the Sultan of Morocco were altogether friendly, and that it entertained no designs of territorial aggrandizement. The influence of the French representative, M. Ordega, in Morocco was a cause of jealous forebodings, especially in Spain. Besides inducing Sidi Hadji, the Sherif of Wazan, to become a French subject, he exercised a strong influence over the Government, and forced the Sultan to abate some of his arbitrary and tyrannical practices, thereby winning the gratitude of the people, who look upon France as their protector. His energy and the diplomatic arrangement with Sidi Hadji, whose power rivals that of the Sultan, caused the estrangement of the latter and a state of feeling that might lead to complications such as the French Government declares that it wishes to avoid.

Annexation of Cambodia. — The kingdom of Cambodia was virtually annexed to Cochin-China, and taken under French administration in 1884. A protectorate had existed since 1863. In 1881 the consent of King Norodom to pay 1,650,000 francs a year for French protection was obtained. On the 4th of June, 1884, Governor Thomson, of Cochin-China, arrived with a fleet at Phom-Penh, and the next day demanded that the King should hand over the administration of customs. At the second conference with the King the latter refused to entertain the proposal, and, when the governor next came, the King denied him an audience, on the plea of sickness. On the 17th French troops, which had been sent for, took possession of the royal palace. The governor with his staff entered the King's apartments and compelled him to sign a treaty under the threat of banishment. On the 6th of August the King sent a protest against the ratification of the treaty, which went far beyond the customs convention, and placed the entire direction of the government in the hands of the French. This change in the terms was justified on the ground that the King had insulted the French representative, for which reparation was necessary. The administration of the finances, justice, and public works was placed by the treaty under the control of the French Government.

Annexations in Africa.—In the spring the French took possession of the port of Obok, at the entrance of the Red Sea, which was brought under the protectorate of France in 1862. On the west coast Porto Novo, which has been nominally French territory for several years, was regularly occupied. The action of France in the Congo region is noticed elsewhere (see CONGO, INTERNATIONAL ASSOCIATION OF THE). In Madagascar operations were confined to blockading the ports of the Hovas after the bombardment of Mahanovo in May (see MADAGASCAR).

International Conventions.—A convention for the protection of submarine cables was signed at Paris on March 14 by the plenipotentiaries of twenty-six states. The convention remains in force for five years from a date to be agreed upon by the contracting powers, and is then to be renewed by tacit agreement from year to year. If any power withdraws at the end of one of the terms, the compact is still binding on the rest.

The ratifications of the convention of March 20, 1883, for the protection of patents and trade-marks were exchanged June 6 at Paris. The states composing the international patent and trade-mark union are England, Belgium, Brazil, Ecuador, Spain, Guatemala, Italy, the Netherlands, Portugal, San Salvador, Servia, Switzerland, and Tunis. England, Ecuador, and Tunis gave their adhesion to the convention June 6.

Relations with Germany.—The general agreement in policy between the French and German governments, and the support extended by the German Chancellor to the French contention in the diplomatic conflict with England, and to the Tonquin and Tunisian policy of France, were a source of weakness to the Ferry ministry. The prospect of a Continental alliance against England was distasteful to the French people, not only because it seemed to involve the renunciation of the idea of revenge, and the reacquisition of Alsace and Lorraine, but also because a falling out with England would injure French trade, while Germany, instead of affording any recompense, was successfully competing with France in her staple manufactures in all foreign markets. At the national festival on the 14th of July a German flag was torn down by the mob from the front of a hotel in Paris, an incident for which the Prime Minister made a formal apology to the German ambassador.

The Reorganization of French Defenses.—The restoration of the French military establishment, after the disasters of 1870 and 1871, is almost completed according to the original plans, so that the French can soon be relieved of the extraordinary war budget. Up to Dec. 31, 1884, the credits voted for this purpose amounted to 2,293,971,451 francs. Of this sum 276,399,969 francs remained unexpended. The Minister of War proposed to expend 85,000,000 francs in 1885, and to distribute the remainder over the succeeding years. Of the 2,017,571,485 francs already expended, 1,089,180,387 went for arms and supplies, 569,865,125 for fortifications, 70,526,901 for provisions, 18,791,584 for hospitals and field hospitals, 25,437,710 for remount and saddlery, 213,599,022 for clothing, 24,560,692 for general expenses, and about 5,500,000 for various services. Some 132,000,000 francs are required for the completion of the system of fortifications.

The Municipal Elections.—The municipal elections of May 4 revealed a great gain of strength to the Radicals in the constituencies. The results showed them to be about equal with the Government party or Opportunists. In Paris the election turned upon the question of acquiring larger political powers for the municipality. A bill had already passed the Chamber, but was resisted by the Senate, which would divide Paris into four districts, each returning twenty deputies by *scrutin de liste*. The result of the elections indicated an early revival of the question of giving Paris a central mayor, and at last establishing the Commune. In 1880 the Municipal Council voted to establish a mayoralty, but the Government simply annulled the enactment. The autonomist idea was a paramount issue in Lyons and Marseilles also, and in all the large cities. This principle was the leading feature in the programme of Clemenceau, and the other Radicals. It had been advocated by Gambetta and Ferry when in opposition, yet when they came into power the almost absolute authority that the centralized system of French government places in the hands of the ministry seemed too important a political power to resign, so that they were easily convinced of the danger of such a step. Nothing would drive the French peasantry into the arms of the reactionaries sooner than the establishment of local self-government, especially in Paris, so jealous are they of the influence of the cities. Aside from this question, the Government lost largely in the elections on account of the Tonquin campaign. The Radicals opposed the course of the Government in Tunis, Madagascar, and Tonquin, setting their faces against the colonial adventures of the Opportunists from the beginning, and the French people were growing more and more dissatisfied with this policy, which cost them continual sacrifices for which no returns had yet accrued.

Revision of the Constitution.—The long-mooted question of constitutional revision was brought to an issue in 1884. The Government had put it off to the close of the legislative period, in order to avoid a dissolution of the Assembly. They were now impelled to bring forward a programme of reform, principally by the fear of disrupting the party and arraying the advanced Republicans against them in the coming elections. The Constitution of 1875 was the work of the reactionists then in the majority. While establishing universal suffrage for the election of the Chamber of Deputies, it imposed a check upon the democracy by instituting a Senate, with the power of absolute veto over the acts of the Chamber, to which three fourths of the members were chosen by very select electoral bodies, only one fourth of the Senate at a time at periods of three years, and one fourth were elected for life by the Senators themselves. Representation in the Senate was based upon the singular principle of the equality of communes, very satisfactory to the peasants, who are jealous of the ascendency of the cities. The system of indirect election gave each commune a single delegate in the electoral college, chosen by the municipal council. The smallest hamlet had the same representation as the city of Paris. M. Ferry, representing the conservative mass of the Republican party, who dreaded a sudden drift toward radicalism, partly from a fear of social and religious legislative innovations in themselves, partly because they foresaw danger to republican institutions from conflicts between the capitalistic and the proletarian, the religious and the freethinking, the urban and peasant classes, was desirous of minimizing the constitutional changes. The revision bill that he introduced in the Chamber of Deputies simply modified those features in the constitution of the Senate which were flagrantly at variance with republican ideas. The Republican party could not have united on any important change. Some desired to make the Senate the controlling legislative body, some to have it elected by universal suffrage, while the extreme section would abolish it altogether. The Government scheme of revision proposed to do away with the life-senatorships and have the seats, as they became vacant by death, filled by Senators elected for nine years by the joint votes of the Senators and Deputies. The mandate of the departmental Senators M. Ferry proposed to popularize, though but in a slight degree, by having the number of delegates chosen by the communes proportioned to the number of municipal councilors. This would give Paris with 3,000,000 inhabitants but eight times as many electors as villages of 300 inhabitants, which have 10 councilors, while towns of 100,000 have 24 and Paris 80. To avert a possible dead-lock between the Chambers, M. Ferry proposed to give the Senate a suspensive veto over measures passed up from the Chamber, instead of the power of absolute rejection. Another clause of the bill carries out the idea of the secular state by abolishing the annual public prayers in all churches, chapels, and synagogues at the opening of the legislative session. Another provision enacting that "in no case shall constitutional revision bring into question the republican form of government" possessed only the effect of a declaration in favor of the permanence of the republic. The law on the election of the Senate M. Ferry proposed to take out of the Constitution and make an ordinary statute like the electoral law for the Chamber of Deputies. Amendments of the budget made by the Senate were to be decided, on the return of the budget bill, by the Chamber unless they involved expenditure and stipends arising from organic statutes, in which case an agreement of both houses would be necessary.

The debate on the revision proposals of the Government, which were submitted May 24, did not end until July 3. M. Ferry moved the revision of the Constitution only to satisfy the extreme Left, and in fulfillment of a pledge made to that section of the party. He made it a condition that the scope of revision should be confined to the Government programme. No legal limit could be imposed on the Chambers assembled in Congress as a constituent assembly. The Congress would be sovereign and have power to alter the Constitution to any extent, or to frame a new one. An agreement was, however, made between the sections of the Republican party, and promises were given not to pass the limits marked by the Government propositions. The advocates of unlimited revision were aroused when the moderate nature of the Government project was unfolded. In the country at large there was little interest in the discussion. The agitation in favor of revision, which was started by M. Gambetta when incensed at the rejection of the *scrutin de liste* by the Senate, had died out when the ministry at last proposed a scheme of revision. The Government bill went up to the Senate in the beginning of July. The clauses abolishing life-senatorship, doing away with public prayers at the meeting of the Chambers, and declaring the republican form of government unrevisable, were agreed to, but the proposed amendment of Article VIII of the Constitution affecting the legislative powers of the Senate was rejected. This clause proposed to take away from the Senate its control over money bills. An amendment of M. Berlet, which left dotations to the clergy and subsidies to established institutions, subject to the vote of the Senate, was accepted by the Government. These ecclesiastical grants were hitherto the principal financial subjects in dispute between the two Chambers. The House of Deputies never went to extremes, but avoided a dead-lock by giving in to the Senate. The advanced Republicans were not content to leave the only controverted items in the budget in the control of the Senate. The amendment was accordingly withdrawn, and the clause omitted from the revision bill.

The Congress, which met in the Palace of Versailles August 4, thus received the moderate scheme of revision proposed by the Government only in a mutilated and emasculated form. The constitutional amendments were reduced to three—one declaring the republic established forever, one abolishing public prayers at the opening of the session, and one replacing life-Senators by Senators elected for the ordinary term, in a manner to be finally determined by the Senate itself in an ordinary bill passing through the two Chambers. The Congress sat during the period when the news of the French reprisals in China threw the nation into a state of anxious suspense. The sessions passed off with few exciting episodes. The bill, which was embodied in the identical resolutions of the two Chambers, described by M. Ferry himself as a "decapitated" measure, was adopted, and the Congress adjourned August 13.

The electoral law of the Senate, the most important part of the revision programme, remained to be dealt with by ordinary legislation. The Senate began the discussion of the bill revising its organization November 4. The Congress had decided that life-senatorships were to be abolished. The principal question now to be considered was, by what manner of election the 75 seats, converted into nine-year senatorships, were to be filled. In the earlier period of the discussion, when the Advanced Left were clamoring for the abolition of the Second Chamber altogether, the Senators were inclined to the proposition, which was embodied in the report of the Senate committee, of having the 75 Senators chosen by the same electorate as the other 225. This electorate was composed of the Councils-General of the departments, the Deputies for each department, and communal delegates—one representing each commune, large or small. The latter description of electors was to be changed, so that under the revised Constitution the more important communes should be represented by a proportionate number of delegates in the electoral body. The Government proposition, which originated in a suggestion of Gambetta, and embodied the conclusions of the Congress of Versailles, was to have the seats filled by the joint votes of the two Chambers. This plan would virtually give the House of Deputies the power of appointing one fourth of the Senators. When the matter now came up for decision, the power of conservative resistance had regained force enough to impel the Senate to insist on retaining the system of election by which the Life-Senators had been chosen. The Senate, in selecting its life-members, took them from a different class of men from those who secured election in the departments, or from the active politicians who would enter the Senate as the candidates of the ruling party in the Chamber. They were the most distinguished men who took an interest in public affairs, from the ranks of diplomacy, the law, literature, science, the press, and military life. By an unchanging custom, which prevailed since the Senate first counted a Republican majority, the vacancies as they occurred among the members for life were filled on what was called the principle of co-option from each of the three groups of the majority—the Left Center, the Pure Left, and the Advanced Left—in rotation. If the system of co-option were abandoned, these seats would all fall to the two latter sections of the party.

When the bill came before the Chamber of Deputies, M. Floquet offered an amendment, December 2, for the election of Senators by universal suffrage. Enough members of the Republican and Democratic Unions, which constitute the ministerial majority, joined their votes with those of the Extreme and Radical Left and the reactionary groups to carry the resolution by 267 to 250 votes. The bill thus amended was sent back to the Senate. As the fate of the Government, as well as of the bill, depended on reconciling the antagonistic views of the two Chambers and passing the measure before the 15th of December, when the warrants for the senatorial elections had to be issued, the Senate renounced the Lenoël amendment, making the new Senators elective by the Senate alone, rejected the Floquet amendment, and adopted the scheme of the Senate committee which had been adopted by the Government. When the bill came back to the Chamber, M. Ferry made the rejection of the Floquet amendment a Cabinet question, and secured the passage of the bill, and at the same time a general vote of confidence, by a majority of 53. The measure, as finally approved, merges the 75 life-senatorships as they fall vacant with the 225 departmental senatorships. The scale of senatorial electors assigned to the municipalities proportions their voting power to the number of municipal councilors as follows: 1 delegate or senatorial elector to communes with 10 municipal councilors, 2 for 12 councilors, 3 for 15, 6 for 21, 9 for 23, 12 for 27, 15 for 30, 18 for 32, 21 for 34, 24 for 36, and 30 for Paris.

The Primary Education Bill.—The Chamber in March passed a bill debarring the clergy and members of religious orders from the direction of primary schools as teachers, inspectors, members of the educational councils or of the officially appointed school boards. This measure, introduced by Paul Bert, directs the Government to secularize the state schools entirely within five years, by appointing lay teachers in the place of the 3,000 friars and 20,000 nuns who have 12,000 of the schools under their management, and partly control 6,000 others. It also forbids the lay instructors from accepting salaried employments in the churches.

The Divorce Law.—The Naquet bill to legalize divorce was passed by the House of Deputies in the session of 1883. Divorce of the most unrestricted kind was enacted under the first republic, and afterward abrogated. Napoleon I re-established divorce, and availed himself of his decree to put away the Empress Josephine. M. Naquet's bill repealed the act of 1816, by which divorce was abolished after the restoration. The Senate passed the clause of the bill repealing the law of 1816 by a large majority, and, after considerable discussion, agreed upon a measure granting divorce for the causes of adultery, conviction of crime, cruelty, and on other grounds. As judicial orders of separation have been granted at the rate of about 5,000 a year, there were a great number of suits ready to be entered as soon as the law was in force. The attitude of the Vatican was defined in a diplomatic note, sent immediately after the passing of the measure, in which the Pope reminded the Government that the Church had never sanctioned divorce, and that the indissolubility of marriage was a dogma of the Catholic religion. The Government replied that the new law had purely civil effects and was not intended to set aside the law of the Church as to marriage, and that the Holy See could give its bishops whatever instructions it saw fit, and use its religious powers to prevent the operation of the law among Catholics.

The Recidivists.—The French Government has long had in contemplation the plan of relieving France of habitual criminals by colonization. The introduction of a comprehensive measure for this purpose was a part of the legislative programme for 1884. The prospect of such legislation caused excitement in Australia, and was made the pretext of an agitation in favor of the annexation by Great Britian of the islands of the South Sea, which France and Germany in their colonizing mood might covet. The French authorities had, after the return of the Communards, sent certain classes of criminals, especially homicides, to New Caledonia. Under the humanitarian administration of Captain Pallu de la Barrière, the convicts in New Caledonia enjoy many liberties, and in some cases make their escape in small boats, and in several instances reached the coast of Queensland, 1,000 miles distant. To carry out the idea of colonization, women from the French female reformatories, who were willing to marry the New Caledonian convicts, were sent out in annual parties. The criminal population on the island was already almost large enough to occupy all the fertile spaces not alienated by the Government. Under the pressure brought to bear by the British colonists, Lord Granville remonstrated with the French Government for planting a penal colony so near the shores of Australia. In January, 1884, M. Ferry explained that the recidivists sent to New Caledonia were not positive criminals, and promised that, in the event of any escaping to Australia, extradition would be applied for, expressing at the same time his belief that the feeling in Australia was prompted by annexation thirst. A bill was introduced by the Government into the French legislature in the spring, to provide for the transportation of recidivists, or persons convicted of repeated offenses of a certain class. This excited fresh protests from the Australian authorities. The English Government continued negotiations in the interest of the colonies, but did not assume the determined attitude they desired, which would have prompted the French legislators to pass the measure in a most undesirable shape. M. Ferry insisted that it was purely a home question. The object of the bill was not only to remove relapsed criminals from France, but to place them in a condition of comparative liberty for the purpose of reclaiming them. M. Courbet, who was commissioned to report as to the effect of the bill, advised keeping the criminals in restraint. Other inquiries showed that there was not room in New Caledonia, where there were only 160,000 hectares of arable soil, for a large addition to the present criminal population, which is about 6,000. In the summer Lord Lyons protested again against the recidivists bill in any form. When the bill was reported by the senatorial committee in August, the intentions of the Government as to the destination of the recidivists had changed. Cayenne was declared to be a healthful country, the failure of the former experiment being due to mismanagement. Four fifths of the recidivists were to be sent there, the remainder going to New Caledonia. The classes of offenders who come within the purview of the bill are those convicted of larceny, breach of trust, obtaining money on false pretenses, destroying trees or crops, obscene conduct, enticing young persons for immoral purposes, and begging or vagabondage under suspicious circumstances, who have undergone imprisonment a certain number of times within ten years for the same offense, or other crimes or misdemeanors. The prisoners are to pass a period of probation in the agricultural penitentiaries of France. The skilled artisans will be sent to New Caledonia, and the rest to Cayenne, to be employed by the colonists, or in state factories. Land will be allotted to those adapted for agriculture. Their families will be brought out to them, and to the unmarried facilities for obtaining wives will be offered.

The Sugar-Tax.—For the benefit of the beet-growers and sugar-refiners, a bill was carried through the Chamber by the Government in July, imposing a sur-tax on foreign sugar. The improved methods in the manufacture of sugar invented in Germany, in conjunction with the sugar bounties, stimulated production, chiefly in that country and in Austria, to such an extent as to produce a crisis in the sugar-trade throughout the world. This was consequently the branch in which the Government was first persuaded to grant the protection that was demanded by agricultural and industrial interest alike, particularly as the duty would shut out German competition for the French market. The new law raised the import duty on manufactured sugar from three to seven francs per metric quintal for a limited period, ending August 31, 1886. The French production of sugar increased only from 415,000 tons in 1875 to 420,000 in 1884, while the export declined from 230,000 to 120,000 tons. In Germany the manufacture increased from 290,000 to 925,000 tons, 600,000 of which were exported; and in Austria from 235,000 to 600,000 tons, 300,000 of which were exported. Those countries had wrested from France the trade with Italy, Spain, Greece, Roumania, Egypt, and the Levant, had established a demand for beet-sugar in England, and were now entering the home market. The machinery in the German refineries was acknowledged to be better than was used in the old-fashioned processes still followed in France, extracting 10 per cent. of the weight of the beets in sugar, whereas in French factories only 5 to 7 per cent. was obtained.

The Tax on Wheat.—The French Government, like the German, has been subjected during the agricultural depression to a strong pressure from the land-owning interest to save it from the effects of American competition by protective duties. The prohibition of American pork was a concession to this class, which is more powerful than in Germany or in Great Britain, because it includes so large a proportion of the voting population of France. The desired duty on wheat would benefit a much larger class of agriculturists; but a measure that would enhance the cost of living while French industry was sorely pressed by foreign competition, and while wages were depressed and hundreds of thousands of workmen out of employment, would aggravate the crisis, and prove disastrous to the party that carried it through. All the legislation of 1884 was arranged with reference to the elections of 1885. The financial administration of the Government was its most vulnerable point. While agriculture, manufactures, and shipping were suffering from a crisis, the Government was exposed to complaints for not taking the right course to sustain agriculture and create new resources for industry, while spending 500,000,000 francs a year upon public works, and 100,000,000 upon public schools, and embarking in unprofitable colonial enterprises which had cost already 300,000,000. A comparison with the period when the country enjoyed prosperity under the Conservatives and Moderate Republicans, and the treasury was cautiously managed by men like Léon Say, was most likely to arise in the minds and influence the votes of the rural population who were clamoring for a tax on foreign grain. The budget showed a deficit which could not be staved off by any transfer of accounts, and which would necessitate a new loan unless new sources of revenue were found. To impose new taxes for revenue purposes alone on the eve of elections M. Ferry frankly declared would be impolitic. For the double purpose of propitiating the farmers, and restoring the balance in the budget, the Cabinet was at last induced to propose an additional duty on imported grain. The duty of 5 francs per quintal demanded by the protectionists was considered a mischievous rate. The committee of the Chamber, which reported the bill in December, recommended raising the duty on wheat from 60 centimes to 2 francs 40 centimes, and on flour from 1 franc 20 centimes to 7 francs. The proposed duty on wheat is over 12 per cent. on its average value. It was argued that this would not raise the price of bread, but would be borne by the middle-men. The Government also proposed an import duty on cattle.

The Economic Crisis.—The Government was confronted with a new difficulty in 1884, arising from the suffering condition of the working-classes in the industrial centers, and especially in Paris. The subsidence of the building fever, and the decline in the export demand for the finished products of French skill and taste, produced an industrial crisis which lasted many months before the working-people demanded the intervention of the state for their relief. In January excited meetings began to be held in the Salle Lévis. The Anarchists and the disciples of Karl Marx denounced the *bourgeoisie*, and preached a social revolution, while the moderate Socialists, called Possiblists, asked for a donation of 25,000,000 francs to the syndical chambers or trades-unions of Paris to enable them to take more contracts. These trades-unions are co-operative associations, as well as organizations for the protection of the general interests of the workmen in the various trades. Some of them, the paviors' corporation, for instance, execute Government contracts and divide the profits among the laborers. Their business facilities were considerably augmented by the bequest some years ago of an estate which was to be kept as a fund, out of which they could obtain advances. The Possiblists also suggested that the Government should redeem the property of poor people held in pawn by the Mont de Piété. Deputy Tony Revillon presented in the Chamber an address of the breadless laborers assembled in the Salle Lévis, in which they demanded that the Government should provide work. A delegation of the unemployed which waited upon Dr. Clemenceau and his associates of the Extreme Left, when asked to say what remedial measures they desired, responded that it was the business of their representatives in the Legislature, not of the workmen, to devise legislative remedies. M. Langlois offered a resolution, which was adopted by the Chamber, in favor of an investigation, and the employment of every means by the Government for the amelioration of the condition of the working-class. The situation was aggravated by the strike in the coal-mines of Anzin, which left 2,000 families without food. This strike was brought on by reduction of wages below living rates. The syndical chambers of workmen throughout France came to the assistance of the strikers, who had the general sympathy of the people. Besides the dynamite outrages which caused much alarm in 1883, there was no disturbance. The Chambers passed a bill providing for boards of arbitration to settle future disputes between mine-owners and workmen. In April, when the company had worked off its accumulated stock, and the last means at the disposal of the miners were exhausted, the long strike at Anzin came to an end. In the summer demonstrations of breadless laborers took place in the open air. It was M. Ferry's policy to suppress such manifestations in the streets of Paris, while allowing full license of speech in-doors. A law against seditious cries and demonstrations on the public streets was carried in the early part of the session. On November 23, after a noisy meeting in the Salle Lévis, a collision with the police took place on the boulevard when the workmen attempted to form in procession. On December 7 another riotous meeting was held, in which a struggle took place for the chair, the conveners of the meeting being outnumbered by Socialists of a more radical cast. In May the police prevented the erection of a monument to the fallen communards on the spot presented by the Municipal Council in Père Lachaise cemetery. In the Paris Municipal Council the question of the price of bread was brought up by the working-class representatives. The different sections of the labor party cast nearly 38,000 votes in the municipal elections of 1884, three times as many as in 1881, the Possiblists scoring 33,604 votes, the Blanquists 3,219, and the Guedists, the noisy advocates of a social cataclysm, only 867. The poor complained that the 1,800 master-bakers of Paris, by combinations among themselves, kept up the price of bread, notwithstanding the fall in the price of wheat. They also neglected machinery and improved ovens, which would greatly lessen the cost of manufacture, content with the profits secured through the ring. The Socialist Councilors proposed that the municipality should establish public bakeries, and thus insure fair wages to journeymen, and provide the people with cheap bread. The Municipal Council, though not willing to go to such a length in state Socialism, adopted the underlying principle by returning to the ancient practice of fixing a maximum price for bread. The subject of securing improved dwellings for the poor by state intervention was also pressed before the Municipal Council by the representatives of the labor party. A parliamentary committee, appointed in accordance with the resolution adopted by the Chamber, pursued during the year its investigations into the conditions of labor in the various seats of industry.

The Lyons Silk Industry. — The Lyons industries have been seriously affected by foreign competition. Cheap German and Swiss fabrics, containing from 60 to 90 per cent. of cotton, nearly drove the pure silks out of the market. The manufacturers became merchants and supplied their rivals with raw materials, while the weavers were left without employment and driven into other occupations. Some of the factories began making the mixed goods, but the duty of 360 francs per quintal on cotton yarns placed them at a disadvantage, as the Germans paid from 45 to 48 francs, and the Swiss only 4 francs. To enable them to compete, the Government, in 1883, decreed the temporary admission free of duty of fine yarns. As the coarser yarns were chiefly used, the manufacturers were not much benefited. When the period of temporary admission drew near the close, deputations appealed to the Government for its prolongation, but were met by counter-appeals from Lille and the other cotton-manufacturing towns.

In the latter part of 1884 there was an acute labor crisis in Lyons. The Government afforded partial relief by pushing forward the works of fortification in order to give employment to the idle mechanics. The municipality distributed aid and planned new public works, for which it would be necessary to raise a new loan. The crisis did not start in the silk industry, but in the manufacture of hardware. The cholera caused a depression in the leather-manufacturing and in the building trade. Finally, the silk industry stood still.

The Cholera.—In June the cholera broke out in Toulon. Thousands of people left the city, conveying the disease to Marseilles and other places. The disturbance of business produced in the south of France was a greater calamity than the epidemic itself. The mortality in the two cities where it first appeared was serious. As many as 80,000 people fled from Marseilles. In the autumn cases appeared in Paris, an event which increased the economic distress by keeping away many of the tourists on whose patronage a large part of the population depend.

The Phylloxera. — The exertions which have been made recently, especially in 1883, to extirpate the phylloxera, or confine its ravages, have met with gratifying success. When this destructive insect first made its appearance there were 2,465,310 hectares of land in France devoted to vine-culture. In 1883 the area had diminished to 2,048,586 hectares. The phylloxera, and the extreme cold during the winters of 1879 and 1880, destroyed together 859,352 hectares of vineyards. There were 442,628 hectares replanted; but no efforts could make the cultivation successful on the infected spots. Besides the blighted localities, 642,978 hectares more were attacked down to 1883. Instead of increasing in rapid progression, as had been the case previous to 1883, the increase in 1882 being 60,874 hectares, the infected area showed a diminution of 815 hectares at the end of that year. The area protected or restored in 1883 was 72,187 hectares, against 49,793 in 1882. There were 17,-792 hectares flooded with water, 26,323 treated with sulpho-carbon and carbonates, and 28,012 planted with American vines.

The Hugues-Morin Affair. — One of the most celebrated cases of recent years arose out of the irresponsible practices of the private detective agencies in furnishing testimony. A detective named Morin, in seeking evidence against a husband whose wife sued for a divorce, accused him of improper relations with a Mlle. Royannez who became the wife of Clovis Hugues, the Radical Deputy for Lyons, a famous poet and orator. Madame Hugues brought suit against her traducer, but becoming exasperated at numerous adjournments of the case, shot him in open court, inflicting a fatal wound. The Chamber of Deputies in consequence of this episode passed a measure for the regulation of the private detective offices. Madame Clovis Hugues was tried and acquitted, although private vengeance is not usually condoned by public opinion or by the courts in France.

The Republic of Andorra.—The republic of Andorra has given rise to a dispute in which the politico-religious conflict of the Third Republic is interwoven with a feud of the dark ages. About 1400 the Counts of Foix and Urgel ended a struggle extending through centuries by dividing the suzerainty over the Andorrans. These rights became vested in the Kings of France and in the Bishops of Urgel, and were exercised in the appointment of judges to prevent smuggling. The Bishop of Urgel complains that the French judges interfere in politics. There is a conflict between an Ultramontane and feudal party and a party of liberal ideas imported from France. Hence the complaint of the Spanish prelate, and representations from his Government.

FRERE, Sir HENRY BARTLE EDWARD, an English statesman, born in Wales, March 29, 1815; died at Wimbledon, May 29, 1884. He entered the service of the East India Company in 1833, from the preparatory school of Haileybury, where he was the first in his class. Reaching Bombay after an adventurous journey by the unusual route through Egypt and the Persian Gulf, he was appointed to a laborious post in the revenue department at Poona, in which he was of service to Mr. Goldsmid in improving the system of collecting taxes. He there acquired a remarkable knowledge of the history and character of the Mahratta people. In time he succeeded to Mr. Goldsmid's post at Candeish. His method of revenue assessment among the Mahrattas was so successful, that it was applied to the whole of the Bombay

Presidency, and afterward to Mysore, Sinde, and Berar. He was unexpectedly called to the position of private secretary to Sir George Arthur, Governor of Bombay. The annexation of Sinde, through the military operations of Sir Charles Napier, raised an outcry among the East Indian civilians, many of whom considered the act inexpedient as well as unjust. Mr. Frere displayed tact and discretion during this controversy. In 1844 he married a daughter of Sir George Arthur. In 1847 he was appointed Sir James Outram's successor as Resident at Sattara. When the Rajah died Frere recognized his appointed heir as Rajah, but the Company, which had deposed the former Rajah and deprived him of the right of adoption, ignored its agent's act, and annexed the state. Mr. Frere was made Commissioner. Two years later, in 1850, he succeeded Sir Charles Napier as Chief Commissioner to Sinde. That barren country he improved by constructing canals, and by opening roads, and by making Kurrachee a seaport. When the mutiny broke out with the rising at Meerut, although he had but two English regiments among a Mohammedan population of two millions, he sent the best of them to hold the strong fortress of Moultan. He displayed the same foresight, vigor, and fortitude during the entire crisis. He repressed three attempts at mutiny among his native troops, and sent part of them to preserve tranquillity in the Punjaub, and part into central India, saying, in a dispatch to Lord Elphinstone, that "when the head and heart are threatened, the extremities must take care of themselves." For his services during this period he was knighted. After the suppression of the mutiny, he was nominated to the Viceroy's Council, and went to Calcutta, where he assisted James Wilson in restoring the disordered finances. After Mr. Wilson's death he was Finance Minister until the arrival of Samuel Laing, whom he assisted in the completion of the work. In 1862 he was appointed Governor of Bombay. He started many works of public utility in the presidency. During his administration the death-rate of Bombay was reduced one half. He was Governor during the cotton-fever and the crisis that followed upon the ending of the American war.

In 1867 Sir Bartle Frere returned to England and was appointed to the Indian Council. His career in India was uniformly successful and fortunate, but the same success did not attend him in a new field of labor which he entered near the close of his life. After serving as Special Commissioner to the East Coast of Africa in 1872 and in May, 1873, negotiating the treaty with the Sultan of Zanzibar in which that ruler undertook to suppress slavery, he was appointed to accompany the Prince of Wales on his Indian tour and enlighten him in matters of Indian policy and history. In January, 1877, Sir Bartle Frere was appointed Governor and High Commissioner at the Cape of Good Hope. Here he showed the same vigor and political capacity that distinguished him in India, but neither the white nor the black populations of South Africa were to be molded to the will of a great administrator like the conquered people of India. He took up the scheme of a confederation of the states of South Africa, over which England should exercise a supreme controlling power. The idea had been suggested as a means of diminishing the responsibility of the English Government in South Africa, but with him it meant the extension and strengthening of imperial authority. The Zulu and Transvaal wars were the result of his policy. What he might have accomplished by the unlimited exercise of the military power of England remains a subject of historical speculation, for his action in South Africa was one of the main causes of the overthrow of the Disraeli ministry, a consequence of which was his recall and the reversal of his imperial policy.

SIR HENRY BARTLE EDWARD FRERE.

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GEOGRAPHICAL PROGRESS AND DISCOVERY. **Africa.**—The young Scotchman, Joseph Thomson, has returned from his expedition to Victoria Nyanza, and has given in outline an account of the remarkable results of his work. He arrived at Zanzibar in February, 1883, and set out for Kilimanjaro, which he ascended to the height of 8,700 feet. Finding that he had fallen upon the track of Dr. Fisher, who had aroused the hostility of the natives, the wild and warlike Masai, he was obliged to abandon his plan of passing to the southwest of the mountain, and returned to Taveta. From here he chose a route passing to the east of Kilimanjaro, and advanced for the second time on the Masai country. After getting past the Masai of Lake Naivasha, he started, on the 6th of October, with thirty men, for the district of Lykipia and Mount Kenia. Passing out of the meridional trough or depression that extends for many hundred miles southwest from the Red Sea, ending in Tanganyika, and abounds in charming lakes, the party ascended to the plateau of Lykipia, which they found occupied by the Wa-Kwafi. The landscape, with its splendid forests of coniferous trees, was more suggestive of middle Europe than of equatorial regions. A magnificent chain of mountains, extending from north to south, and rising about 14,000 feet, were crossed and named the Aberdare range. After the greatest trials, Mount Kenia was reached. It is a volcanic cone, whose uppermost 8,000 feet are characterized by glittering facets of snow. Measuring nearly thirty miles in diameter at its base, this extinct volcano rises from a thorn-clad plateau 5,700 feet in altitude. Up to a height of 15,000 feet, the angle is very low; but from here the mountain suddenly springs into a peak, the sides of which are so steep that the snow can not lie on many places. The unclad parts, showing through the white snow as black spots, give the summit a speckled appearance, and hence its Masai name of Donyo Egaré. Mr. Thomson next proceeded to Lake Baringo, a glittering, isle-besprinkled sheet of water, surrounded by wonderful mountain scenery, evidently of an entirely volcanic nature. Here he rejoined his caravan, and resumed, on the 16th of November, with about one hundred men, his journey toward Kavirondo and Victoria Nyanza. In the large town of Kwa-Sundu, on the river Nzoia, he encamped most of his men, and proceeded with a small party. On the 10th of December he reached Victoria Nyanza, forty-five miles east of its outlet to the Nile. Both the fertile country of Kavirondo, a part of which lies where Victoria Nyanza is placed on our maps, and the regions nearer the lake, were densely populated. Thus Mr. Thomson succeeded in giving a definite place on the map to Mount Kenia and Lake Baringo, and in correcting former ideas of the location and form of Victoria Nyanza. Besides, he has had an opportunity to study some of the most remarkable negro tribes. At the base of Mount Elgon, forty miles north of the northeast coast of the great lake, he discovered a large number of caves cut into the compact volcanic rock, and occupied by whole tribes and their cattle. They were very high, and extended into utter darkness; their present inhabitants had no tradition as to their origin. They are hardly more than 150 miles from the English station in Uganda. Probably the most interesting feature Mr. Thomson met with was the cattle-breeding Masai, through whose country he passed during the first part of his journey. In physique, language, and religious beliefs they are quite distinct from the Bantu or negro stock farther south. Their customs are very remarkable. During the greater period of their lives the unmarried men and women live together in a kraal in an indescribable manner. The men are warriors; the women attend to the cattle and perform household duties. Their diet is very strict. For several days milk is their only food; then follows a period in which only meat is eaten. They drink the blood of the bullock; but spirits, beer, tobacco, and vegetables are strictly forbidden. The Masai man first marries late in life; then he goes no more to war, and is allowed to indulge in vegetable food and all kinds of drinks. Corpses are never buried. They are not a very tractable people, and it is difficult to cultivate friendship with them; but when once made it is genuine. Mr. Thomson made his way through all the wild tribes without the loss of a single man by violence, or the necessity of shooting a native. With broken health, but cheerful and good-humored, he emerged from the wilderness on the 2d of April, 1884, having completed nearly 2,000 miles of travel, and returned to England.

The mountain-range of Kilimanjaro is the subject of a scientific expedition undertaken by Mr. H. H. Johnston, under the auspices of several societies. In the middle of June, 1884, the exploring party, consisting of 120 men carefully selected by Sir John Kirk, the Consul-General of Zanzibar, had reached Uvura, a station on a plateau, 5,000 feet in altitude, one of Mount Kilimanjaro's buttresses. Uvura will be the starting-point for future investigations, and the traveler has succeeded in obtaining ground at a moderate price. The plateau is beautiful, the sides being furrowed by profound ravines, the beds of wild torrents descending from the snow-clad summits. The natives have caused one of these streams to traverse the plateau, furnishing the expedition with ice-cold water. The climate is that of southern Europe, without the fervid midday heat. The inevitable fever attacked Mr. Johnston at Mombasa, but he persevered in marching at the head of his faithful and enduring men, and soon regained his health in the bracing and salubrious air of the mountains.

Robert E. Flegel, discoverer of the sources of Benuë, has returned to Germany after some years' explorations in the region of Adamana. His travels during 1884 seem to have yielded less satisfactory results. Want of money, illness, and other mishaps prevented him for a long time from starting on his journey to the Congo. Meanwhile he explored the sources of several tributaries to Benuë, and corrected his map of this tract. Later, he endeavored to travel along the river Nana toward the Congo, but his plan was frustrated by a war between the several tribes of the region. An attempt to proceed from Bagnio in a southwesterly direction was resisted by the Prince of Tibati. Thus Flegel was obliged to return to Benuë. He feels convinced that this river is navigable for 1,100 kilometres, and its chief affluents for a distance of fifty to sixty nautical miles, at least during five or six months of the year, whereby the importance of Benuë as a route of commerce is greatly increased. He warmly advises the German Government to take possession of this region.

Later explorations having reached the result that Africa is by no means so unhealthful and uninhabitable as hitherto supposed, the attention of the great European powers has been called to this vast continent, which offers many advantages for successful colonization. With this end in view, many expeditions have been sent to the several parts of its extended area, and German, French, Portuguese, and English explorers are making investigations. Difficulties as to boundaries, etc., have arisen, but will undoubtedly be settled amicably.

Arctic Regions.—But meager reports of the results of the International Polar Expeditions have appeared, and it seems that the exploring parties met with unusual difficulties. Dr. A. Bunge's observations of the flora and fauna in the vicinity of the Russian station at the mouth of the Lena are interesting. Of mammals he noticed the ice-bear, the wolf, the fox, the ice-fox (*Canis lagopus*), the ermine, the walrus, the dolphin, the mountain-sheep (*Aegoceros montanus*), and the reindeer, from spring to autumn. Many fishes were found, but few insects, and no mollusks. In April, 1884, the doctor began to dig for a mammoth that, according to the inhabitants, should lie buried on the shore of Protaka, near Borchaja, but the results are not yet known. Another mammoth, it is reported, was found at the river Móloda. The vegetation is remarkably poor, as the soil consists almost entirely of sand. It is ascertained that the Lena at present reaches the sea through about fifty arms, forming the famous Lena Delta; frost, floods, and wind, however, are constantly working considerable changes. The climate is very severe, chiefly on account of the ever-blowing wind; in December, 1883, the thermometer showed — 48° C.

The Danish explorations in Greenland were continued during 1884. In April Lieut. Jensen left Copenhagen to explore some hundred miles of the unknown and unpeopled western coast between the Sukkertop and Holsteinsminde. He was accompanied by the geologist Lorenzen and the artist Riis-Carstensen. Under the command of Capt. Norman, the gunboat Fylla made a very satisfactory voyage along the western coast to 70° N. Dr. H. Topsöe, the mineralogist, Prof. Warming, the botanist, and Th. Holm, the zoölogist, were on board, and valuable collections and observations were made. A meteoric stone of considerable weight was found, and, by extensive dredging and trawling, specimens hitherto unknown were brought to light. In this connection must be mentioned the proposition of Prof. Fries to move to Greenland the Lapps of the Norwegian Finnmark and the Swedish Lappmarks, who can find no room beside the agricultural classes of their present home. Their reindeer would find plenty of moss along the coast, without being exposed to attacks of wolves; and the splendid salmon-fisheries would undoubtedly be utilized by the industrious, money-saving Lapps—a race far superior to the childish Esquimaux.

While great masses of ice west of Spitzbergen have made navigation difficult, it has been possible to make further investigations of the sea east of this island. Two Norwegian fishermen—H. C. Johannesen, well known from the Vega expedition as captain of the steamer Lena, and H. Andreasen—have discovered two islands east of King Charles's Land. They are between 36° and 39° east longitude.

Asia.—In November, 1883, the indefatigable explorer of Thibet, the Russian Colonel Przewalsky, started from Urga for a two years' expedition through the mysterious dominions of the Grand Lama. With a strong escort of Cossacks and other attendants, he passed through the Desert of Gobi to Alashan, where he arrived early in January, 1884. Following his old route of 1873, he traveled through southern Alashan, crossed the mountain Kansu, which is near the river Tetung, and arrived at Tscheibssen in March, 1884. From here the expedition went to Zaidam, where a depot was established at the foot of the mountain Burchan-buda, in order to leave behind there, in charge of part of the escort, all dispensable baggage and camels. In May the colonel's party, fourteen strong, took a southern direction over the sources of the Hoang-ho to the Yangtse-kiang, which passes through a woodless Alpine region. As he was unable to cross the latter river, the large lakes at the upper course of the Hoang-ho were explored, one of them being named "Lake Russia" and another "Lake Expedition." These are 4,100 metres above the sea, while the surrounding mountain plateau is about 300 metres higher. The climate is very trying, with severe frost in May and heavy snow-storms in July, while during summer the considerable amount of alluvium that the southwestern monsoons carry from the Indian Ocean almost converts North Thibet into one continuous marsh. The country has no want of mammals and fishes, but few birds. The flora is poor. On the shores of both rivers live the Tanguts, against whose attacks the explorers had twice to defend themselves. It is to be deplored that Col. Przewalsky did not reach the proposed end of his summer's expedition, Tsiamdo, which French and English travelers have reached from the south, but which no European has yet approached from the north. According to the latest news, it was the intention of the distinguished Russian to move his depot to Gast, in West Zaidam (*circa* 37° N.), and during the winter make excursions through northern Thibet.

The assertion of M. Paul Bert that man at an elevation of about 18,000 feet would become incapable of exertion, and that a little higher he would be unable to breathe, has been disproved by the energetic mountaineer, Mr. W. W. Graham, whose efforts to climb the steep summits of the Himalayas have been crowned by the ascension of Gubour (21,300 feet) and Kabru (24,015 feet). This bold Englishman holds the view that Mount Everest no longer can be considered the highest summit on earth, but must yield this honor to one of two mountains fifty miles northwest of it. (See MOUNTAIN EXPLORATION.)

In Central Asia the Russians are exploring region after region. It will be remembered that Capt. Putjata, with the geologist Iwanow and the topographer Bendersky, and a strong escort, started in 1883 from Osch, to explore the Pamirs, where the sources of the Oxus lie. The leaders of the expedition separated after their arrival at Muschi, and went in different directions; yet the communication between them was kept up as much as possible, and at several places they met, but only to separate again. The results of their work are being published, and seem to be very valuable. The heights of numerous mountains and plateaus have been ascertained, considerable geological and botanical collections made, and Mr. Iwanow has drawn about one hundred maps. In St. Petersburg a preliminary map of the Pamirs has been published, whereby new light is thrown upon these regions, as it in some respects is in conflict with the latest English map. In this connection we must mention the botanist, Dr. Regel, who for years has traversed and retraversed this region, and who, after spending the winter in Taschkend, started in February, 1884, on a new excursion. He arrived, in June, at Merv, having passed through the Desert of Tschardschui. It was then his intention to travel along the northern boundaries of Afghanistan to the Pamirs. Although botany is the doctor's chief study, he is all the time making observations of great value in other fields. This excursion will probably be his last, as it is his intention to spend some years in publishing the results of his travels.

So far, no steps have been taken to realize the Russian project for diverting the Oxus into the Caspian Sea, which, in spite of the water received from the Volga, Ural, and other rivers, is rapidly drying up, in consequence of the great evaporation. There is strong evidence that, in the fourteenth and fifteenth centuries, an arm of the Oxus reached the Caspian Sea; but the old bed has almost disappeared, and the difficulties of its restoration are so many that the expenditure seems out of all proportion to any benefits to be expected.

Of the greatest importance to the study of Asia's geography are the publication of a "Map of Asiatic Russia," issued by the Russian Government, and a "Map of Asiatic Turkey," by the German Professor H. Kiepert; the former being the outcome of eight years', the latter of not less than thirty years' work, and both of them giving the results of the latest explorations.

Central America.—The following figures will give an idea of the rate at which the canal-works at Panama are proceeding: During January, 1884, 580,000 cubic metres were excavated; in February, 633,657; and in March, 615,831. A cubic metre is 1·308 cubic yards. The total quantity of excavation to be done in a length of 46·6 miles is estimated at 100,000,000 cubic metres, but will probably be far greater. At the end of March, 1884, 4,590,022 cubic metres were excavated. It is confidently hoped that the whole work will be finished in 1888, if the engineers succeed in overcoming the great difficulty presented by the river Chagres, which cuts the line of the canal nearly at right angles. The stream will be arrested by an enormous dike across a valley, and out of the reservoir so constructed the overflow will be led by two artificial channels. Another difficulty appears in the necessity of making a cutting 110 to 120 metres deep, and 500 feet wide at the top. Yet the great mechanical skill of the leaders of the enterprise, and the gigantic power of the machines employed, will undoubtedly overcome these and similar obstructions.

North America.—In 1883, M. Napoleon Comeau called the attention of the Geographical Society of Quebec to the supposed existence of a great lake between Hudson Bay and Labrador, and the society at once procured the money necessary for the equipment of an exploring party, in charge of John Bignell and Mr. A. J. Lowe. The main expedition was, in June, 1884, preceded by Mr. F. H. Bignell, of Quebec, who, accompanied by nineteen men, with great difficulty reached the northern boundaries of the Province of Quebec, the water-shed between the rivers flowing into Hudson Bay and those flowing into Lake St. John and the St. Lawrence. The elevation, however, is very small, nowhere more than six to eight feet in height, and at times most difficult to trace at all. Less than ten miles from this water-shed, or 350 miles from Lake St. John, the party reached Foam Bay, one of the two arms into which a long, narrow peninsula divides the southwestern extremity of the great Lake Mistassini, the very one referred to by M. Comeau. Eighteen miles farther on the lake, they arrived at a Hudson Bay Company's station, and here provisions were left for the main expedition. From September 10 to 17, Mr. Bignell voyaged on the great lake, making 120 miles, without reaching its main body. It seems to stretch toward the northeast, how far could not be ascertained. Probably it is an expansion of Rupert river, as the great western lakes are an expansion of the St. Lawrence. Deep and numerous bays cut into the low-lying shores; beautiful and often large islands offer places of refuge, when the sea is running high; and the deep waters of the lake, in many respects so like Lake Superior, swarm with trout, salmon, pike, pickerel, perch, and various other fish. The surrounding region is well wooded; birch, poplar, balsam, and spruce being common, but yielding no merchantable timber. The soil rests on a limestone foundation, and is well suited for agricultural purposes, while outcropping rocks show promising mineral indications. Potatoes and other roots are raised at the Hudson Bay post; peas yield a fine crop, and oats will undoubtedly ripen during the short but warm summer. The climate is comparatively mild, the temperature ranging from 20° below to 100° above zero, and the Indians are peaceable, strictly honest, and of fine physique, but dirty and superstitious, though nominally Christians. The chase is dangerous, as wolves and black bears of unusual size and ferocity are common. On his return trip, Mr. Bignell failed to meet the main expedition, but it is believed they have arrived safely at the Hudson Bay Company's post.

The full reports of Capt. Jacobsen's travels in northwestern America (1881–'83) have appeared in print. They give detailed accounts of excursions into Alaska, hitherto chiefly known through Messrs. Stoney's and Schwatka's interesting explorations.

South America.—A member of the German expedition to South Georgia, Dr. C. von Steiner, went, in February, 1884, from Montevideo to Asuncion, with the intention to start in April for Cuyabá, in the Brazilian province of Matto-Grosso, in order to pass along the river Xingu, still unexplored, as far north as the Amazon. In the company of his brother and Dr. Claus, and with an escort of Brazilian soldiers, he left Cuyabá on the 26th of May, and arrived a week later at Rosario. On the 28th of June, Aldea dos Bacairis, near Rio Paranatinga, was reached, and, in spite of troubles caused by the rough soldiers, the observations had proved of great interest, and important corrections of the maps hitherto drawn had been made. The region through which they traveled is described as a *campo cerrado*, and appears much like a neglected orchard. A dispatch of October 31 said that the party had arrived safely at Pará. Detailed information has not been received since the 20th of July. At that date the explorers were going down the river Batovy.

Fears were entertained that Mr. Richard Payer had met with some serious difficulties during his explorations of the region forming the water-shed between the Orinoco and the Amazon, as he had not been heard from in six months. Letters have, however, been received, dated February and August, 1881. He gives no account of the results of his work; but it seems that his main efforts during travels from 1881 to 1884 were concentrated on the exploration of the tract between the Uráriquera's and the Orinoco's sources, and that he succeeded in gaining a full and detailed knowledge of this hitherto unknown district, which will make publication of accurate maps possible. Mr. Payer gives a vivid description of the unhealthful condition of Manaos, and declares that all ideas of colonizing must be abandoned.

GEORGIA. **State Government.**—The following were the State officers during the year: Governor, Henry D. McDaniel, Democrat; Secretary of State, N. C. Barnett; Treasurer, D. N. Speer, succeeded by R. V. Hardeman; Comptroller, William A. Wright; Attorney-General, Clifford Anderson; State School Commissioner, G. J. Orr. Judiciary, Supreme Court: Chief-Justice, James Jackson; Associate Justices, Martin J. Crawford and Alexander M. Speer.

General Condition.—The Governor says:

> Our crops have not met the expectations of those dependent upon the rewards of agriculture; but there has been no disastrous failure in any section of the State. Improved methods of husbandry, increased industry and thrift, and the steady tendency to greater diversity of crops, have kept the farming interest fairly prosperous. There has been a gratifying increase in manufactures. Industrial enterprises are constantly springing up and furnishing more varied means of honest livelihood, and adding to the number of skilled artisans. We have not escaped the depression which has affected manufacturing interests throughout the Union, and the effects of the financial panic of the past spring and summer have been severely felt in our commerce and finances. Yet the strain has been admirably borne, and there has been no such increase in the number and amount of failures as to destroy, or seriously impair, confidence. Crime has not increased, while the laws have been vigorously enforced. There has been a perceptible increase in the number of convictions and executions of the death-sentence, but this is attributable to increased vigilance on the part of officials of the courts, sustained by an enlightened public opinion. We may not hope to suppress crime altogether. No people have lived under conditions which rendered such a result attainable. But we may hope to render punishment more certain, and protection to life and property more efficient.

Finances.—The balance in the treasury, October 1, 1882, was $690,472.15; receipts for the ensuing year, $1,327,051.64; disbursements, $1,487,384.41; balance Oct. 1, 1883, $539,139.88; receipts for the ensuing year, $1,533,220.38; disbursements, $1,924,259; balance

Oct. 1, 1884, $148,100.76. This last sum was in actual cash; former balances included bonds and coupons paid off and held as cash. The rate of taxation has been reduced from five mills in 1878 to three mills. The bonded debt Oct. 1, 1882, was $9,624,135; Oct. 1, 1883, $9,454,635; Oct. 1, 1884, $8,704,635; a total reduction of $919,500. The interest on the debt for 1883 was $645,440; for 1884, $638,495.40; for 1885 it will be $582,121; a total reduction of $63,319. The Governor, in his message to the Legislature, says:

> An important duty which will claim your attention is the provision for payment or funding of the bonds maturing in the years 1885 and 1886, other than the 8 per cent. bonds which are provided for by existing law. There are three classes of these bonds: Of the 4 per cent. bonds issued under act of Dec. 14, 1878, and due Jan., 1885, $58,135. The 6 per cent. bonds, issued under act of Feb. 27, 1856, and due February, 1886, $126,000, and $150,000 due August, 1886; 7 per cent. bonds with mortgage on Western and Atlantic Railroad, issued under act of March 12, 1866, and due July 1, 1886, $3,525,500. The payment of balance due from the East Tennessee, Virginia, and Georgia Railroad Company, on the purchase of the Macon and Brunswick Railroad, extinguished $610,000 of the foregoing, as follows: $557,500 of 7 per cent., $138,400 of 6 per cent., and $40,100 of the 4 per cent. bonds, leaving $3,249,635 outstanding.
>
> The conditions under which we are called upon to provide for these bonds are exceptionably favorable. Our debt is being steadily and rapidly reduced, while the resources of the State are steadily increasing. The admirable provisions of the Constitution forbidding the increase of the bonded debt and requiring the payment of $100,000 of principal annually (or the setting apart of that amount as a sinking fund) and the application of the proceeds of the sales of public property to the bonded debt, invite confidence in our finances.

He recommends the issue of thirty-year 5 per cent. bonds, and says:

> There has been a steady increase in the annual return of property for ad-valorem taxation. The aggregate in 1879 was $234,459,548—for 1884 was $317,074,271, an increase of $82,615,723.

On the subject of uniformity of rate in taxation, the Governor says:

> The citizens of Atlanta were assessed for city purposes, in 1884, on real estate, to the amount of $21,116,268, and returned in personalty $8,933,982—an aggregate of $30,050,250. Fulton County, comprising all the people and property of Atlanta, and many thousands of prosperous population, and millions of property in addition, returned under our loose system $17,801,345 realty, and $12,934,820 in personalty—an aggregate of $30,736,165. The citizens of Savannah were assessed, for city purposes, on realty in 1884, upon $12,516,202, and returned personalty to the amount of $7,145,112—an aggregate of $19,661,314; while the county of Chatham returned for State and county purposes, in 1884, $10,513,054 in realty, and $9,924,929 in personalty—an aggegate of $20,437,983. The citizens of Augusta were assessed, for city purposes, the present year, on real estate alone, to the amount of $11,305,860. The same citizens returned for State and county taxation, for the same year, real estate to the amount of $8,126,250.

New Capitol.—The last Legislature appropriated $1,000,000 for a new and permanent Capitol, and the work is now in progress. The contract price is $862,756.75. The chief stonework will be of oölitic limestone, with Georgia granite for the foundation and base course, and marble for interior work.

Education.—In 1873 the number of white pupils enrolled was 63,922, and colored 19,755, a total of 83,671. Each succeeding year marked an increase. In 1883 the enrollment had risen to 175,668 white and 111,743 colored, a total of 287,411. The average attendance in 1874 was 85,839, and in 1883 was 188,371. The amount of the school fund of 1883 was $465,808.35.

The entire expenses, throughout the State, including sums paid to county school commissioners, amounted to $29,687.39, about 6¼ of 1 per cent. of the whole amount—leaving about 93¾ per cent. of the fund which was paid to the teachers.

The school fund of 1884 has not been ascertained definitely, but the State School Commissioner estimates it to be about $488,688.11. He also assumes the enrollment for 1884 to be 300,000, and average attendance 190,000. The cities and counties, under local laws, raised by taxation in 1883, $147,838.73—making the entire public-school fund from all sources, for that year, $608,172.86. The amount from all sources, received by county officials for disbursement for school purposes since the present system was inaugurated, is $3,705,206.07.

In the several departments of the State University at Athens, 204 students matriculated during the year; in Franklin College, 127; in the State College of Agriculture and the Mechanic Arts, 66; in the law department nine, and post-graduates two; in the medical department at Augusta, 122; in North Georgia Agricultural College, 146; in South Georgia Agricultural College, 130; in Southwest Georgia Agricultural College 106; in Middle Georgia Military and Agricultural College, 390. Total in the university and the branch colleges, 1,091. The report of the Financial Committee shows that there were received during the last collegiate year, including $8,553.41 on hand July 9, 1883, $53,375.90. During the same period, there were expended $43,696.54—leaving a balance, July 5, 1884, of $9,679.36.

Lunatic Asylum.—The number of patients in the Lunatic Asylum on Oct. 1, 1884, was 1,227; white males, 422; white females, 466; colored males, 174, and colored females, 165. The number on Oct. 1, 1882, was 974, showing an increase during two years of 248. The average number under treatment, during the past year, was 1,179; whole number treated, 1,550. Average cost per annum of each patient, $126.90.

The work of enlargement of the asylum has progressed as rapidly as practicable. The building for colored patients, containing about 500 rooms, has been occupied for several months. The convalescent building for females is near completion, and considerable progress has been made on that for males. These buildings will accommodate, perhaps, 1,500 patients.

Penitentiary.—The number of convicts Oct. 20, 1884, was 1,377 (an increase of 135 over 1882), leased for twenty years from April 1, 1879, to three companies. The death-rate for the year among the convicts was less than 2 per cent.

Deaf and Dumb and Blind.—During the year the number of pupils in the Institution for the Deaf and Dumb was 96 (of whom 65 were white and 31 were colored). The entire expenditure by the State for their maintenance was $15,867.74. The attendance at the Academy for the Blind was 71 (of whom 35 were white males, 29 were white females, 6 were colored males, and 1 a colored female).

Gubernatorial Recommendations.—The Governor in his message recommends the establishment of savings-banks, the revision of the laws relating to the State banks and private bankers, the encouragement of volunteer militia companies, and the amendment of the Constitution.

Political.—At the State election, on the 1st of October, the Democratic ticket was chosen without opposition. The result of the voting on the 4th of November was declared as follows: Democratic presidential electors, 94,667; Republican, 48,603; scattering, 340; Congressmen, 10 Democrats. The Legislature, almost unanimously Democratic, convened on the 5th of November, and adjourned, on the 20th of December, to the second Wednesday of July, 1885. On the 18th of November, Joseph E. Brown, Democrat, was re-elected United States Senator. A general local-option bill passed the Senate by a vote of 26 to 12, but, reaching the House late in the session, it was by the filibustering of the minority carried over to July. It provides for an election in any county, city, or precinct, where a small percentage of the voters ask for it; except in counties or precincts where a prohibition law is already in force. It makes the most stringent provision for the carrying out of the law, and provides severe penalties for its infraction. Under special local-option laws, more than ninety of the counties in the State already have either partial or total prohibition. As a rule, the advocates of prohibition are from rural constituencies or from the small towns; while its opponents are usually from the larger cities.

GERMANY, an empire in Europe, formed by the union of the German states, consummated on May 4, 1871, when the Constitution of the German Empire replaced the articles of confederation between the North German states and the treaties by which the Grand Duchies of Baden and Hesse and the Kingdoms of Bavaria and Würtemberg entered the League during the Franco-Prussian War. King Wilhelm I was proclaimed German Emperor from Versailles on the 18th of January, 1871, upon the successful termination of the war with France. He was born March 22, 1797, and ascended the Prussian throne on the death of his brother, January 2, 1861. The heir-apparent is Prince Friedrich Wilhelm, who was born October 18, 1831.

The sovereign powers of the confederation of states forming the empire are vested in the Prussian crown and the Federal Council, but the concurrence of the Parliament, or Reichstag, elected by universal suffrage, is necessary to the exercise of certain functions. The popular assembly possesses, also, certain rights of control over the acts of the Government. To declare war, if not merely defensive, the Emperor must have the consent of the Bundesrath, or Federal Council, in which body, conjointly with the Reichstag, or Diet of the Realm, are vested the legislative functions of the empire. The Bundesrath represents the individual states, and the Reichstag the German nation. The members of the Bundesrath, sixty-two in number, are appointed by the governments of the individual states for each session, while the members of the Reichstag, 397 in number, are elected by universal suffrage and by ballot, for the term of three years. The Bundesrath is presided over by the Chancellor of the Empire, who, as representative of the Bundesrath, has a right to interpose in the deliberations of the Reichstag. Both bodies meet annually, called together by the Emperor. All imperial laws must receive the votes of a majority in each of the houses. And after that the assent of the Emperor, which must be countersigned by the Chancellor, is still necessary to give them effect.

The Chancellor of the Empire, Prince Otto von Bismarck, fills the posts of President of the Council of Ministers, President of the Federal Council, Minister of Foreign Affairs, and Prussian Minister of Commerce. In the office of Foreign Affairs his chief subordinate is Count von Hatzfeldt, Secretary of State, who is also Minister of State in Prussia. The Secretary of State for the Interior is Minister von Bötticher. The Chief of the Admiralty is Lieut.-Gen. von Caprivi, who succeeded Admiral von Stosch, on his retirement, March 8, 1883. The Secretary of State for Justice is Dr. von Schelling; Financial Secretary of State, Von Burchard; Chief of the Post-Office, Dr. Stephan; Minister of Railroads and Prussian Minister of Public Works, Dr. Maybach.

The Prussian ministry is composed as follows: President, Prince Bismarck, Minister of Foreign Affairs and of Commerce; Vice-President, Von Puttkamer, Minister of the Interior; Public Works, Maybach; Agriculture and Domains and Forests, Dr. Lucius; Justice, Dr. Friedberg; Ecclesiastical Affairs, Von Gossler; Finance, Von Scholtz; War, Lieut.-Gen. Bronsart von Schellendorf; without a portfolio, Count von Hatzfeldt-Wildenburg.

Area and Population.—The area and population of the confederated states forming the German Empire were returned in the census of December 1, 1880, as follow:

STATES.	Square kilometres.	Population.
Prussia	348,257	27,279,111
Bavaria	75,859	5,284,778
Saxony	14,993	2,972,805
Würtemberg	19,503	1,971,118
Baden	15,081	1,570,254
Hesse	7,681	936,340
Mecklenburg-Schwerin	13,303	577,055
Saxe-Weimar	3,593	309,577
Mecklenburg-Strelitz	2,929	100,269
Oldenburg	6,420	337,478
Brunswick	3,690	349,367
Saxe-Meiningen	2,468	207,075
Saxe-Altenburg	1,323	155,036
Saxe-Coburg-Gotha	1,968	194,716
Anhalt	2,347	232,592
Schwarzburg-Rudolstadt	940	80,296
Schwarzburg-Sondershausen	862	71,107
Waldeck	1,121	56,522
Reuss-Greiz	316	50,782
Reuss-Schleiz	825	101,330
Schaumburg-Lippe	339	35,374
Lippe	1,222	120,246
Lübeck	297	63,571
Bremen	255	156,723
Hamburg	409	453,869
Alsace-Lorraine	14,508	1,566,670
German Empire	540,519	45,234,061

The total number of males was 22,185,433, of females 23,048,628.

The population of the empire was divided in respect to religion as follows: Protestants, 28,331,152; Catholics, 16,232,651; minor sects, 78,031; Israelites, 363,790; others, 30,615.

A census of occupations, taken June 5, 1882, gives the number of persons in the empire dependent on the various classes of occupations as follows: Agriculture, stock-raising, and gardening, 18,840,818; forestry, hunting, and fishing, 384,637; mining, industry, and construction, 16,058,080; commerce and transportation, 4,531,080; hired labor, 938,294; the public service, municipal and ecclesiastical employments, and the liberal professions, 2,222,982; without occupation, 2,246,222; total population, 45,222,113. The proportion engaged in agriculture, forestry, and fishing was 42·5 per cent. of the population; in industry and mining, 35·5 per cent.; in commerce, and the carrying traffic, 10 per cent.; in other employments or without occupation, 12 per cent.

The number of marriages in 1882 was 350,457; of births, 1,769,501; of deaths, 1,244,006; excess of births, 525,495.

The following cities contained over 100,000 inhabitants in 1880: Berlin, 1,122,330; Hamburg, 289,859, with suburbs 410,127; Breslau, 272,912; Munich, 230,023; Dresden, 220,818; Leipsic, 149,081; Cologne, 144,772; Königsberg, 140,909; Frankfort-on-the-Main, 136,819; Hanover, 122,843, with Linden 145,227; Stuttgart, 117,303; Bremen, 112,453; Dantsic, 108,551; Strasburg, 104,471.

Emigration.—The total emigration registered from 1875 to 1883 inclusive was 815,374. The number not registered is officially estimated at 168,448. Of 710,052 emigrants reported during the five years 1879–'83, 689,879 emigrated to the United States, 8,720 to Brazil, 5,788 to other parts of America, 4,502 to Australia, 1,471 to Africa, and 192 to Asia. The total emigration from Germany since 1820 is estimated at 4,200,000 persons, of whom the United States received 3,250,000. The number of emigrants in 1875 was 30,773; in 1876, 28,368; in 1877, 21,964; in 1878, 24,217; in 1879, 33,327; in 1880, 106,190; in 1881, 210,547; in 1882, 193,869; in 1883, 166,119. The number of emigrants in 1882 who renounced German nationality was 43,588; in 1881, 47,720; in 1880, 28,780. Of the emigration of the three years 1881–'83, 418,000, or 62·8 per cent., came from North Germany. The largest exodus was from West Prussia, Pomerania, and Mecklenburg, where 4·7 per cent. of the population emigrated. Posen lost 3·5 per cent. of its inhabitants. In East Prussia and the industrial districts of the Rhine Province, Silesia, and Alsace-Lorraine, less than ½ of 1 per cent. of the population left their homes.

Commerce.—The total value of the imports of the Zollverein in 1883 was 3,262,500,000 marks of merchandise and 28,400,000 marks of specie, as compared with 3,128,300,000 marks of merchandise and 36,300,000 marks of specie in 1882. The exports of merchandise in 1883 were 3,270,000,000 marks, against 3,188,300,000 in 1882; the exports of specie 65,000,000 marks against 55,800,000. The imports of articles of consumption in 1883 amounted to 1,166,200,000 marks, the exports to 718,300,000 marks; imports of raw materials 1,025,700,000 marks, exports 538,400,000; imports of manufactured products 584,700,000 marks, exports 1,714,600,000; imports of miscellaneous articles 485,900,000 marks, exports 303,700,000. The value of cereals imported was 391,000,000 marks, exports 108,400,000; of fermented liquors imported 48,800,000 marks, exports 74,400,000; of sugar, etc., exported 259,100,000; imports of colonial produce 178,400,000; of tobacco imported 58,400,000 marks; of fruits and vegetables imported 142,700,000 marks, exports 48,900,000; of animals and provisions imported 357,400,000 marks, exports 216,500,000. The imports of fuel were 42,000,000 marks, exports 76,400,000; imports of minerals 63,800,000 marks, exports 50,400,000; imports of raw metals 47,500,000 marks, exports 64,300,000; imports of hides, skins, and leather 234,800,000 marks, exports 164,600,000; imports of textile materials 527,200,000 marks, exports 138,400,000; imports of lumber, 110,900,000 marks, exports 44,800,000 marks. The value of the exports of pottery and glass was 81,000,000 marks, of partly manufactured metals 91,400,000, of metal manufactures 194,700,000, of machinery 149,600,000, of leather manufactures 131,200,000, of yarns 113,400,000, of textile manufactures 678,300,000, of rubber-goods and oil-cloths 20,300,000, of paper manufactures 62,100,000, of wood and straw manufactures 57,900,000, of jewelry and art-manufactures 93,500,000, of books, etc., 41,200,000. The principal manufactured articles imported were, yarns of the value of 291,-

600,000 marks, textile manufactures 109,900,000 marks, machines 39,600,000 marks, and jewelry and art-products 19,300,000 marks. The imports of fertilizers and waste materials amounted to 68,400,000 marks, exports 21,200,000; the imports of drugs, coloring matters, and chemicals to 196,700,000 marks, exports 212,500,000; the imports of gums, fats, and oils to 220,800,000 marks, exports 69,800,000. The export of sugar increased from 1,373,939 quintals in the season of 1879–'80 to 2,972,151 in 1880–'81, 3,193,786 in 1881–'82, 4,789,879 in 1882–'83, and 6,074,960 in 1883–'84.

The export and the import trade of 1883 showed a considerable increase in quantities as well as in values in comparison with 1882. The increase in the imports was principally in animals and meat, fish, rye, maize, malt, coffee, tea, wine, coal, petroleum, ores, lumber, hides and skins, leather and its manufactures, cotton, hemp, jute, cotton and linen yarns, silk, silk mixed goods, feathers for trimmings, and gold and silver wares. There was a falling off in the imports of hogs, eggs, wheat, oats, barley, legumes, fruit, vegetables, hops, tobacco, iron, rags, flax, silk cocoons, wool, woolen yarn, linen, and woolen cloths. There was an increased export of animals, animal food products, wheat and oats, potatoes, flour, fruit, sugar, beer, wine, fuel, chemical products, glass and pottery, iron, lead, hardware, hard-wood and manufactures thereof, fine-wood manufactures, paper, fine leather and leather manufactures, woolens, cotton laces and embroideries, linen and cotton garments, feathers, machines, instruments, time-pieces, fire-arms, and gold and silver wares. There was a decline in hops, high-wines, alizarin, oils, yarns, and silk mixed goods.

The reports of the factory inspectors for 1883 show that industry was flourishing. The sugar-mills, distilleries, breweries, flour-mills, cigar-factories, and furniture-shops were especially prosperous.

Navigation.—The number of vessels entered at German ports in 1882 was 53,268, tonnage 8,440,869; cleared 53,365, tonnage 8,439,594. Of the tonnage entered 4,096,917 tons were under the German flag, of the tonnage cleared 4,129,547. The number of entries with cargoes was 43,214, tonnage 7,532,677; clearances 39,901, tonnage 6,223,622. The number of steamers entered was 15,650, tonnage 5,875,064, of which 8,779, of 2,563,210 tons, carried the German flag; the number cleared 15,622, tonnage 5,881,822; the number carrying the German flag 8,784, tonnage 2,590,686. The tonnage engaged in foreign trade outside of Europe was 2,174,894 tons, of which 67·7 per cent. was monopolized by the trade with the United States.

The number of steamers in the merchant navy, not counting those of less than 15 tons' capacity, in 1883 was 515, of 311,204 registered tons net, employing 10,937 sailors. The tonnage in 1882 was 9,516 tons, in 1881 8,657. The number of sailing-vessels with a capacity of over 22 tons was 4,370, against 4,804 in 1879, the tonnage 1,226,650, against 1,129,129 registered tons.

Railroads.—The total length of German railroads in 1884 was 36,187 kilometres, of which 10,609 kilometres were double-tracked, not including 1,688 kilometres of industrial lines. There were 30,767 kilometres belonging to the state, 1,032 kilometres administered but not owned by the state, and 4,388 kilometres owned and administered by companies.

Posts and Telegraphs.—The postal traffic, including that of Bavaria and Würtemberg, which have separate post-offices, was in 1883 as follows: Number of letters, 732,421,890; of postal cards, 206,463,350; of inclosures under sealed bands, 186,041,100; of circulars, 16,425,950; of newspapers, 487,860,270; money-packets without declaration of value, 84,297,640; with declaration of value, 6,384,040; money-letters with declaration of value, 9,089,480; postal money-orders, 55,688,847; total value of money forwarded, 77,167,076,649 marks; total weight of packages carried, 371,082,430 kilogrammes.

The total length of the state telegraph lines, including those of Bavaria and Würtemberg, in 1883, was 76,218 kilometres; length of wires, 273,535 kilometres; the number of private internal dispatches, 12,396,725; of international dispatches sent, 2,183,894; the number received, 2,390,573; total number of dispatches, 18,377,626.

The receipts of the postal and telegraph service in 1882–'83 were 170,488,913 marks; the expenses, 146,850,087 marks.

The Army.—The effective of the German army on the peace footing in 1884 was 18,115 officers and 427,274 men, with 81,598 horses. The Prussian army counted 13,996 officers and 330,629 men, the Bavarian army 2,211 officers and 50,224 men, the royal Saxon army 1,136 officers and 27,606 men, and the Würtemberg army 772 officers and 18,815 men. The staff numbered 2,032 officers; the 484 battalions of the infantry of the line, 9,529 officers and 278,822 men; 20 jäger battalions, 424 officers and 11,120 men; 275 cadres of Landwehr battalions, 326 officers and 4,764 men; total infantry, 10,279 officers and 294,706 men; 465 squadrons of cavalry, 2,358 officers and 64,699 men; 341 batteries of field artillery with 1,364 guns, 1,801 officers and 34,817 men; and 31 battalions of fortress artillery, 729 officers and 16,349 men; 21 battalions of pioneers, 406 officers and 10,840 men; 18 train-battalions, 200 officers and 4,905 men; and special formations, 810 officers and 954 men.

The war establishment of the German army can muster a field army of 19,391 officers and 744,031 men, with 242,415 horses; 4,796 officers and 296,614 men of depot troops, with 31,373 horses; and 11,240 officers and 416,032 men of garrison troops, with 38,943 horses; total war effective, 35,427 officers and 1,456,-

677 men, with 312,781 horses. The surgeons, veterinarians, paymasters, armorers, saddlers, and other employés, make about 27,000 more. The Landsturm and special formations are not included in these figures.

The German infantry are armed with the Mauser rifle, which has a range of 1,600 metres and fires a bullet weighing 25 grammes. Experiments have been made with a smaller caliber, but a suitable kind of powder has not been invented. Experiments with the Weterli and other magazine rifles have failed for the same reason, the cartridges being too small to produce much effect. Every company is provided with a number of trenching spades, which play an important part in offensive as well as defensive tactics. An aëronautic detachment of engineers was formed in 1884. An important change in cavalry equipment has the same object as the recent conversion of the Russian cavalry into dragoon soldiers, or mounted infantrymen. In future the German cavalry will carry their carbines slung over their back and their sabers suspended to the saddle, while the burden of horse and man will be much lightened.

The Navy.—The German navy has 13 line-of-battle ships, of which 7 are ironclad frigates with 103 guns, and 6 ironclad corvettes with 42 guns. The cruisers are 11 corvettes with closed and 10 with open decks, 5 gunboats built on the Albatross system, and 5 other gunboats of the first class. The coast-guards are 1 armored ship, 13 armored gunboats, 11 torpedo-boats, 4 steamers for laying torpedo-mines, and 1 gunboat of the second class. There are 8 avisos, 2 transports, and 11 school-ships of various kinds.

The Reichstag in its session of 1884 voted 18,000,000 marks for increasing the navy, especially in the matter of torpedo-boats. The naval ministry considers 150 torpedo-boats necessary for the defense of the German coasts. All the ironclads are provided with apparatus for shooting torpedoes. A special torpedo-boat division was added to the navy in July. In the naval manœuvres at Kiel in 1884 the experiments in torpedo tactics were the leading feature. Every squadron is to be accompanied with a number of torpedo-boats, which in distant expeditions will be conveyed to the scene of operations in special transport-ships. It was demonstrated in the manœuvres that no ship is safe from torpedo attacks when at anchor near a coast plentifully supplied with torpedo-boats, that blockading vessels can be followed and struck when in motion, and that ironclads with water-tight compartments are rendered unmanageable by a blow from a torpedo. The German navy possesses the most efficient torpedo in the world. It was invented by an Austrian naval officer, who sold the secret to the German Government for 180,000 marks. The weapon has been perfected under the direction of the naval authorities until it has become the most accurate and destructive of all the fish-torpedoes. It is directed in its course by electricity, while an automatic apparatus keeps it at the desired depth.

Finances.—The budget for 1883–'84, approved March 2, 1883, makes the total receipts 590,556,634 marks, balanced by the expenditures, of which 537,297,305 marks are under the head of permanent and 53,259,329 are classed as extraordinary. In the budget for 1884–'85, passed July 2, 1883, the receipts from customs are placed at 196,450,000 marks; from beet-sugar 46,865,000 marks, from salt 37,262,600 marks, from tobacco 13,940,920 marks, from spirits 35,925,900 marks, from malt 15,791,000 marks, the common indirect taxes from territories outside of the Zollverein 6,255,710 marks, the particular taxes 1,382,980; total excise and customs duties, 353,874,110 marks. The receipts from stamps on playing-cards are taken as 1,014,700 marks; from stamps on bills of exchange, 6,312,100 marks; from stamps on bonds and certificates, notes, accounts, and lottery tickets, 12,109,880 marks; the net receipts from posts and telegraphs, 25,832,198 marks; from railroads, 16,690,600 marks; receipts from the invalid fund, 28,665,120 marks; the surplus of 1882–'83, 15,825,000 marks; extraordinary receipts, 34,592,720 marks; matricular quotas, 88,702,768 marks. The total expenditures are fixed at 590,819,344 marks, of which 544,327,866 marks are under the head of permanent and 46,491,478 extraordinary. The permanent expenditures for legislation are 407,670 marks; for the Imperial Chancellery, 126,970; for foreign affairs and the consulates, 6,825,415; for the army, 339,872,490; for the navy, 26,908,396; for the administration of justice, 1,824,267; for financial administration, 99,898,408; for the Imperial Railroad Office, 310,365; for the debt of the empire, 15,927,500; for the audit of accounts, 529,073; for pensions, 20,160,404; for the invalid fund, 28,665,120 marks. Of the extraordinary expenditures, 26,762,678 marks were for the army and 10,125,900 marks for the navy. A supplementary credit of 19,092,491 marks was voted to the navy, April 12, 1884, of which 18,790,000 marks were for extraordinary expenditures.

The budget for 1885–'86, as fixed by the Bundesrath, amounts to 621,196,051 marks, the ordinary expenditures at 556,314,286 marks, and the extraordinary at 64,881,765 marks. The revenue is estimated at 44,671,996 marks less than the total expenditures, which amount is to be raised by a loan.

A debt of 370,000,000 marks has been contracted since 1877. An addition of 18,192,720 marks was authorized in 1883, and one of 18,790,000 marks on April 12, 1884. The amount of bank-notes of the empire in circulation in 1884 was 144,845,570 marks.

The invalid fund in 1884 amounted to 515,616,614 marks, the fortress construction fund to 38,385,000 marks, the construction fund of the house of Parliament to 22,453,950 marks, the war fund to 120,000,000 marks, not counting, in the case of the first three, the cash on hand and drafts on Frankfort.

Notwithstanding increased receipts from the salt, beer, and spirit taxes, the accounts of 1884 close with a deficiency of 14,000,000 marks. In the budget for 1885 an increase of 41,000,000 marks in the matricular contributions is asked for. The expenditures show an increase of 12,000,000 marks in the occasional and 8,000,000 marks in continuous class. The sugar-tax showed the greatest falling off. Deputy Richter attributed the deficit to the continual increase of the military and naval budgets, which had been augmented by 91,000,000 and 28,000,000 marks respectively. Deputy Bebel, leader of the Social Democrats, saw in the budget the breakdown of the Chancellor's financial policy, and since positive proposals were demanded from his party, suggested the shortening of the period of military service and hoped that Prince Bismarck would convert the Congo Conference into a conference for peace and disarmament.

Ecclesiastical Policy.—In January a debate took place in the Prussian Landtag on a proposition of Reichensperger to restore the article of the Constitution of 1850 which secured to religious societies the independent control of their organization. This article was stricken from the Prussian Constitution in 1875. Its re-enactment would be identical with the entire abrogation of the May laws. After the rejection of this bill, Windthorst complained that, when the Catholics proposed a general measure, it was not accepted on account of its universal character; and when they offered proposals dealing with evils in detail, they were told that special laws are troublesome and excite without remedying. When they demand only their rights, they should not be asked for concessions in return. To the demand for the recall of the two archbishops, who were not amnestied like the Bishops of Limburg and Münster, Minister Gossler justified the decision of the Government not to recall Cardinal Ledochowski, on the ground of the mingling of religious and political tendencies in the Grand Duchy of Posen.

The Prussian State Council.—In 1884 the Council of State in Prussia, the body that, under the old bureaucracy, constituted the King's Privy Council, was resuscitated, preliminary, it was said, to the intended retirement of Prince Bismarck from the Prussian Ministry, and as a means of impressing his policy on the Legislature and on the Cabinet, in which frictions between himself and his colleagues sometimes occurred. It would take the place in regard to his projects of social reform of the Economic Council, which had failed to impress the elected representatives of the people with its authority to speak in the name of the economic interests of the country. The function of the re-established State Council was to discuss bills prior to their introduction in the Prussian Parliament or the Reichstag, and also to consider proposed administrative measures. The Crown Prince was brought into relations with the Government of the country by his appointment as President of the State Council. Bismarck was made Vice-President. The members by virtue of their office are the Ministers of State, field-marshals, the Secretary of State, the President of the Court of Accounts, and the chiefs of the private, civil, and military cabinets. The King appointed about 100 members, who were nearly all selected from the conservative supporters of the Government, the majority of them belonging to the class of landed proprietors, and a large proportion holding important offices in the state. Outside of the aristocratic and bureaucratic elements there was a sprinkling of professors, clergymen, merchants, and local officials. The State Council met for the first time, October 25. Sections were formed for (1) foreign and military affairs, (2) agriculture, (3) justice, (4) finance, (5) commerce and industry, (6) ecclesiastical, educational, and medical affairs, (7) domestic administration.

The Meeting of the Three Emperors.—On the 15th of September the Emperors of Germany, Austria, and Russia, accompanied by their Ministers of Foreign Affairs, came together in the castle of Skiernievice in Russian Poland, near the boundaries of the three countries. Ministers de Giers, Kalnoky, and Bismarck had previously held a conference at Friedrichsruhe. The conclusions arrived at then were now confirmed by the three monarchs. The results were the subject of much speculation in the European press. The meeting gave final assurance of the cessation for the present of the tension between Austria-Hungary and Russia. In his address at the opening of the Reichstag the Kaiser declared that the friendly relations renewed at the meeting were insured for a long time, and furnished a strong guarantee for the continuance of peace. Another result was probably the conclusion of an agreement for vigorous common action against revolutionists and conspirators. Soon after the conference at Skiernievice, thousands of Russians were expelled from Germany. On the 1st of January, 1885, identical notes were exchanged between the Russian and Prussian Governments which embodied a convention for the extradition of persons convicted or accused of the following offenses: (1) murdering, maliciously wounding, imprisoning, or insulting the reigning monarch or any member of his family; (2) assassination or attempted assassination; (3) making or keeping illegally dynamite or other explosive substances. Germany had entertained Russian proposals for united action made in 1881 after the murder of the Czar, but Austria had declined to join such a league. Germany opened negotiations with the European powers with reference to an international treaty for the prevention of political crimes, but met with opposition, especially on the part of England.

The cordial relations with Russia were advanced by the appointment in the early part of the year of Prince Orloff, who is a *persona grata* with Bismarck, to the Berlin embassy as successor to Saburoff, Baron Mohrenheim being transferred from London to Paris to take Prince Orloff's place.

Prolongation of the Anti-Socialist Law.—The decision of the Reichstag with respect to the continuance for two years of the anti-Socialist law seemed likely to be an adverse one, since the Conservative fractions and the National Liberals had no majority, and the Center party, which held the deciding votes, had taken a stand against this as well as other exceptional legislation. During the debate Richter, who argued that repression drove the Social Democrats into the arms of secret conspirators and anarchistic agitators, described the recent discovery, not yet made public, of the Niederwald plot. Bismarck announced his determination to dissolve Parliament in case the bill was rejected. With this alternative before them, 38 of the Clericals voted on the second and decisive reading of the bill, May 10th, with the Government, while 45 voted with Windthorst against the prolongation, and 25 members of the newly-united Liberal Opposition deserted their leaders and voted for the bill, which was carried by 189 votes to 157. By this enactment the law of October 21, 1878, against the dangerous aims of the Social Democracy remains in force until Sept. 30, 1886. An amendment of Windthorst to abrogate the clause forbidding Social Democratic meetings was accepted by the committee, but afterward withdrawn by the mover.

The Explosives Law.—Eugen Richter, the Progressist leader, accompanied his disclosure of the Niederwald attempt, first made during the discussion in committee of the anti-Socialist bill, with a motion to request the Government to bring in a bill against the abuse of explosive materials. Such a bill, Minister von Bötticher announced, the Government had in preparation. The act was passed June 9th. The manufacture, importation, purchase, sale, or possession of explosives is prohibited to all who are not specially authorized by the police. The transit trade in explosive substances is permitted, subject to certain formalities that enable the authorities to follow the shipments in their transport through the empire. Persons having a license to manufacture or sell must keep a register so as to be able to give an account to the police at any moment of the origin and disposal of their goods. Certain kinds of gunpowder are excluded from the operation of the act. The penalty for the illegal possession of explosives, or for making, procuring, or giving them to others without a legal warrant, is imprisonment at hard labor for from one to five years; for causing danger to life or property by their use, imprisonment at hard labor, which shall not be for less than five years in the case of serious bodily injury resulting, nor less than ten years if death ensue. Conspiracy to commit crimes under the act is punishable with imprisonment for not less than five years. It is a penal offense also to incite by public utterances to the commission of such crimes, or to praise or glorify persons committing them.

The Accident-Insurance Law.—The bill for the insurance of industrial laborers injured or killed at their work, which failed to pass with the sickness-insurance act in 1883, principally on account of the provision to organize the business under the direction of the state, instead of leaving it to private companies, was brought in again in essentially the same shape. Prince Bismarck obviated objections by stating that he desired merely a legislative basis for his insurance scheme which could be amplified and improved in the light of experience. He appealed to the deputies to abandon sterile negation and become fellow-shoemakers with him in relieving the people where the shoe pinches, and preventing them from going barefoot, reminding them that they possessed the right of initiation as well as the power of rejection, and promising that he would gladly consider any alternative proposals for these ends. The insurance bills he described as the complement of the anti-Socialist law, proving that, while repressing agitation that set class against class, the state had undertaken to better the condition of the working-people. In this year's debates Bismarck created a sensation by enunciating the doctrine of the right to labor in the following words: "If you will give to the laborer the right to labor as long as he is in health, secure to him care when he is sick, secure his support when he is old; if you will do that and not shrink from the sacrifices, and not cry out about state socialism whenever the support of the aged is spoken of, if the state shows more Christian solicitude for the working-people, then I believe that the gentlemen of the Wyden programme (the Social Democrats) will blow their whistle in vain, that the numbers flocking to them will diminish greatly when the workmen see that the Governments or the legislative bodies mean to care for their welfare in earnest." When called to account by Eugen Richter for propounding so novel and startling a doctrine, he replied: "I recognize a right to labor without qualification, and shall maintain it as long as I am in this place. In that I do not stand on the ground of socialism, which is supposed to have begun with the Bismarck administration, but on the ground of the municipal law of Prussia." There is, in fact, a paragraph in the Prussian code, never applied except to the extent of relief works in times of general distress, which prescribes that, "to those who lack the means or the opportunity to earn the support of themselves and their families shall be assigned work suited to their strength and capabilities." The Social Democrats brought in a resolution to request the Bundesrath to lay before the Reichstag without delay a bill which would realize the right to labor proclaimed by the Chancellor.

In the new accident-insurance bill the quota which, in the earlier form of the proposition, the imperial exchequer was to contribute, was left out. The business is organized on the system of mutual insurance between the employers in the industries indicated in the act. All the employers throughout the empire in each branch unite in a trade association. The various industrial employments are grouped and graded into different classes of risks. All employers must report the nature of their business and the number of laborers they employ to an Imperial Insurance Office at Berlin, which superintends and controls the assessment and payment of damages by the trade associations. In the investigation of accidents committees of workmen take part. General provisions in the act regulate the amount of damages in cases of injury and death.

The Joint-Stock Law.—A bill was passed by the Reichstag, on the proposal of the Government, which subjects joint-stock companies and Bourse transactions to a strict control. Among other provisions there is one that makes the circulation of false reports affecting the values of stocks an indictable offense. The Government, in another bill, proposed to draw a large revenue from stock-exchange transactions, and at the same time restrain speculation by imposing a tax of 2 per mille on all sales of shares and bonds and other Bourse transactions. By the law passed in 1881, a fixed tax of 20 pfennigs is collected on every cash bargain, and one of one mark on every time or speculation sale.

The Niederwald Anarchist Plot.—After the unveiling of the Niederwald national monument in 1883 it was discovered through the revelations of an informer that a quantity of dynamite had been deposited in a drain-pipe, with the intention of assassinating the Emperor, the Crown Prince, and the other royal persons, high officers of state, and distinguished politicians present. The conspirators were brought to trial at Leipsic in December. The leader, Friedrich August Reinsdorf, was a compositor, of excellent personal character and popular with his fellow-workmen, but a political fanatic who had frequently been in prison and under police surveillance for political offenses. He was eloquent, and possessed an active and acute mind and a remarkable power of ascendency over the minds of others. The other principals were Rupsch and Küchler, the former a mere boy, who made a confession to the authorities implicating his accomplices, but excusing himself with the plea that he did not ignite the fuse, as he was appointed to do, but undertook and pretended to do so for the purpose of saving the Emperor's life, and in order to witness the ceremonies without expense. According to his story, Reinsdorf unfolded the plot in September, 1883, to his fellow-Anarchists at Barmen, where they all resided. Rupsch and Küchler were intrusted with its execution. They raised the money for the journey with difficulty among themselves. Arriving the day before the dedication of the monument, they deposited the dynamite in accordance with Reinsdorf's directions. There was four pounds of the explosive in a stone bottle. Rupsch declared that he and Küchler stood together in the crowd over the fuse, and when the imperial party approached he stooped down as though to fire the fuse with a cigar, but that the cigar was not lighted. As Küchler insisted on making another attempt, he said that he secretly cut the fuse. They took up the dynamite and Küchler afterward fired it at Rüdesheim near the grand pavilion where a concert was going on, causing a tremendous explosion but injuring no one. Küchler told a similar story in which he played the part of the savior of the Emperor's life and tried to shift the guilt upon Rupsch. Reinsdorf made a full admission of the part he was accused of taking in the conspiracy. He said that he had sent Rupsch because he was himself in the hospital confined with a sprained ankle, Küchler going along as a moral support. The object was a demonstration that would show the deep-rooted discontent of the masses and hasten a change of government. He willingly risked his own life and did not regard the sacrifice of the lives of a few princes as a matter of importance compared with the end to be gained. Reinsdorf had been all over Germany and in various other parts of Europe, and had been expelled from several towns for teaching his revolutionary doctrines. He had held relations with Hödel, who attempted to assassinate the Emperor, and with Most, the editor of the "Freiheit." Reinsdorf and the other two principals were sentenced to death; Bachmann, one of the same band, who at Reinsdorf's instigation had exploded a can of dynamite in a restaurant at Elberfeld, and Holzhauer, who was accused of furnishing the dynamite for the Niederwald attempt, were sentenced to imprisonment for ten years. The judges concluded on the evidence that the train had been ignited but only burned to the middle, being moist from the rain that fell during the entire night.

The Kraszewski Trial.—A remarkable political trial took place at Leipsic in May before the Supreme Court of the Empire. Joseph Kraszewski, one of the most distinguished of Polish authors, and a former captain in the Prussian army named Hentsch were prosecuted for high treason, their offense consisting in revealing military secrets of the German Government to the French authorities. The Chancellor, in a communication to the war department, made the following statement as to the nature of the conspiracy in which the aged Polish poet and novelist was engaged. A society of Polish military men in Paris was formed in 1864, which had for its object the restoration of the kingdom of Poland, and with that view stud-led to obtain information concerning the organization of European armies, to establish relations with Polish officers in Austrian, German, and Russian service, and to take an active part in all European events. The members acted on this principle with the Garibaldian volunteers in 1866, under Wolowski in the German War of 1870–'71, and in the Turkish service in the Russian War. They were employed by Colonel Samuel, of the statistical bureau of the French War Ministry, to furnish information regarding the armies of Europe from 1873 to 1877, when the bureau was abolished. Wolowski was then intrusted by Gambetta with the formation of an intelligence bureau, which had its chief center in Dresden, where Kraszewski had resided since the Polish insurrection of 1863. Kraszewski, speculating on the prospects of restoring the independence of Poland through a European convulsion, undertook to obtain information concerning the German military arrangements. He employed a Hungarian Jew, named Adler, who hired Captain Hentsch for this purpose. The latter was a man of insinuating address who was received in army circles and endeavored to support his family by military journalism. Hentsch compiled papers on various military subjects, which were transmitted to Paris under the pretense that they were intended for publication in a military journal. When Hentsch's sources of information were closed, about 1881, Adler removed to Vienna, where he offered to supply the Russian Government with marching routes of the German army corps to the frontier, and received an offer of 7,000 marks, about the sum that Kraszewski had paid him altogether. General Feldmann, the Czar's military representative, paid him various small sums, but complained that his information was not reliable. He also black-mailed Kraszewski, and because the latter would give him no more money carried out his threats and betrayed his accomplices to the German ambassador in Vienna. The reports furnished by Hentsch embraced the method of transporting troops to the western frontier by road and rail, the plans of the fortifications of Metz, the principle of a new repeating rifle, the method of obtaining reserve mounts, the system of field railways and telegraphs, etc. Captain Hentsch and Kraszewski were both found guilty and sentenced, the former to nine years' imprisonment at hard labor and the latter to three years and a half confinement in a fortress.

Alsace-Lorraine.—The new regulations concerning optional nationality and the military service, which gave offense to the Danes of Schleswig-Holstein, were preliminary to the introduction of similar measures in the imperial province. Marshal Manteuffel, the Stadtholder of Alsace-Lorraine, issued, September 1st, a rescript affecting the young men of the Reichsland who claim foreign nationality. Frenchmen by origin or by option having sons are required to naturalize themselves or their sons when the latter have reached the age of military service. In case of refusal the young men will be expelled and will only be permitted to visit their relatives for three weeks in the year. Young men recognized as foreigners by the option committee must become naturalized and report for military service, on pain of expulsion. If a father or his son be not considered a proper subject for naturalization, the son will be expelled. Young men who have gone abroad with emigration certificates, that is, the sons of wealthy families educated in Paris, must serve their time in the army unless they can prove that they have received a new nationality, in which case they will be banished like the others. There are 4,500 families residing in the province, containing 14,900 persons who are recognized as foreigners. These, the rescript says, might increase until they formed a considerable French colony, to the detriment of the German army. A class more obnoxious to the Germans than those with which the rescript deals is that of the rich Alsatian mill-owners who have taken up their residence just across the border in Switzerland, giving the Swiss cities the benefit of their profuse expenditures. The new buildings of the university at Strasburg, which is lavishly supported in the hope of cementing Alsace-Lorraine to Germany, were opened with pomp and ceremony on the 27th of October.

The Lasker Incident.—In the beginning of February Minister Sargent handed to Count Hatzfeld the resolutions of condolence passed by the House of Representatives at Washington, after the sudden death in New York of Prince Bismarck's great antagonist in the Reichstag, Eduard Lasker. Instead of delivering these resolutions to the President of the Reichstag, Bismarck sent them back to Washington, and instructed Minister von Eisendecher to return them to the House of Representatives, with the explanation that they contained an expression of opinion which was at variance with his own, regarding Lasker's services in the cause of political progress in Germany, and that he could not ask the Emperor to signify approval of his communicating to the Reichstag an expression of opinion concerning the internal affairs of the empire which assigned the deceased deputy a higher position than he occupied, and which implied that the progress of the German Empire was in the direction of political liberty. When attacked in the Reichstag on account of this unusual proceeding, the Chancellor said that the American minister could have conveyed the address directly to the President of the Reichstag instead of through the Foreign Office, that his duties as the highest officer of the realm should not be confounded with those of a letter-carrier, and that the Chancellor of the German Empire could not be expected to allow himself to be yoked to the triumphal car of the opposition.

The Brunswick Succession.—The death in October of Wilhelm, Duke of Brunswick, the last of the German line of Guelphs, created a difficulty as to the succession. The next heir to the throne was Ernst August, Duke of Cumberland, the lawful successor also of his father the late King George of Hanover, dethroned in consequence of the war of 1866. On the death of George V, in 1878, his son issued a manifesto saying that, while bearing for the present the titles of Duke of Cumberland and Duke of Brunswick, he did not waive his claims to the throne of Hanover. By continuing this attitude he made it impossible for the Prussian Crown to recognize his right to the throne of the duchy, nor was he acceptable to the people of Brunswick, who are loyal to the empire and do not wish to see their land become the center of the Guelph movement. Negotiations were begun in 1883, with the object of bringing about a reconciliation between the Duke of Cumberland and the Emperor William, but the Duke refused to make the desired formal abdication of his claim to the Hanoverian throne. On the death of the Duke of Brunswick, Ernst August issued a manifesto, October 18, claiming the homage of the Brunswickers and assuming the government of the duchy, which he promised to govern in accordance with the imperial and provincial constitutions. The Emperor refused to receive the bearer of the Duke's manifesto. The Prussian general at Brunswick, immediately after the Duke's death, issued a proclamation saying that he took command of all the forces in the name of the Emperor. The Duke's estates in Silesia were taken possession of by the Prussian Government. The Council of Regency referred the Duke of Cumberland's manifesto to the Bundesrath, without counter-signing it as he requested. On November 4, a circular to the sovereigns and free cities of the empire contained an able presentation of his legal claims to the succession, and argued that the Emperor had no constitutional power to determine questions of succession. The Federal Council had already resolved not to admit his claims. The Prussian Government did not act on the theory that had been advanced, which would transfer the rights of inheritance inhering in the Hanoverian crown to Prussia. The Emperor proposed that the delegates of the Council of Regents should represent Brunswick in the Bundesrath.

The Fusion of the Liberal Factions. — In the spring the Secessionists, who left the National Liberal party on account of Bismarck's policy of protection and state socialism, united with the Progressists to form a single regular Opposition party.

The General Election.—The election for members of the Reichstag took place October 28. Prince Bismarck hoped to secure a parliamentary majority, independent of the wavering support of the Center, which enabled him to carry through the protectionist policy in 1879, but has been refused or only partially given to his later schemes. The result of the election showed that his economic policy had gained in popularity, though the Clericals still held the balance of power. The German Liberals, who expected to improve their position by the coalition of the two factions composing the party, suffered from their attitude of pure negation, while the Free Conservatives and the National Liberals, the parties that support the Chancellor's views the most faithfully, each gained a number of seats, and the German Conservatives, who also vote with the Government in the main, made remarkable gains. The National Liberals were expected, as the result of a convention held at Heidelberg in the spring, to unite formally with the Conservatives into a Middle party, which would have the Chancellor's policy for its platform and constitute a "Bismarck party *sans phrase*." This alliance did not take place. The Ultramontanes, Clericals, "Blacks," or Center party, retained their hold on the Catholic constituencies, and returned in about the same strength as in the last Reichstag. The Poles and Alsace-Lorrainers sent their distinctive partisans, although the hostility to the empire has abated in Alsace-Lorraine since the introduction of protectionism, and the deputies of the Reichsland are more moderate in their sentiments than formerly. The Danes and Guelphs, classed together as "Savages" or Independents, retain their representation, the latter polling more votes than before. The most significant feature in the election was the remarkable gains of the Social Democrats, who doubled their number of representatives. The Socialist vote in 1871 was 123,975; in 1874, 351,592; in 1877, 493,288. In 1877, immediately after the passing of the anti-Socialist law, while the party suffered from the depressing effect of the Hödel and Nobiling attempts, it declined to 437,158. In 1881, the effect of three years' stringent application of the repressive law was to reduce their voting strength to 311,961 ballots. Although their public meetings were forbidden, they themselves expelled from their places of residence in large numbers, many of their orators and journalists driven into exile, their newspapers and pamphlets declared contraband and suppressed, and their societies broken up, they were still able to keep up their organization. The result of seven years' rigorous enforcement of the Socialist law has been the increase of the Socialist vote to about 550,000 in 1884. Their main object in entering the Reichstag after the enactment of the law was to address their constituents with a freedom that would subject them to criminal prosecution if used out-of-doors. Bebel alone was listened to in the Reichstag for his able and lucid presentations of the condition of the working-class. In the present Reichstag the Social Democrats have a representation that is numerically sufficient to enable them, under the rules of the House, to table motions and command the ear of the Reichstag whenever they desire. The numerical dimensions of the various factions in the last and in the present Reichstag were as follow:

PARTIES.	Elected in 1881.	Elected in 1884.
German Conservatives	53	77
Free Conservatives	28	30
National Liberals	46	49
German Liberals	105	61
Social Democrats	13	24
Volkspartei	8	7
Clericals	98	108
Poles	16	16
Alsace-Lorrainers	15	15
Independents	15	10
Totals	397	397

The New Reichstag.—The newly elected Reichstag opened its session November 20. In the speech from the throne the colonizing efforts of the Government were calculated to develop commercial connections, and stimulate enterprise in a measure to afford markets for German industrial products and employment for labor. A report upon the transmarine settlements taken under the protection of the German Empire was promised, thus introducing the custom of official communications to the Legislature practiced by the Executive in other parliaments. The first of these reports presented to the Reichstag, to which the name of "White-Book" was given, dealt with Angra Pequeña, and gave the diplomatic correspondence with England with regard to that settlement. As a step in the gradual development of the scheme of social reform, proposals were announced for the extension of accident insurance to laborers employed in agriculture and transportation. One of the principal objections made to the measure before it passed was that agricultural labor was not included. An extension of the savings-institutions was also promised. The development of the institutions of the empire rendered necessary the discovery of new sources of income. The attempt to obtain a higher net revenue from sugar was rendered difficult by the depression of the sugar industry, and the agricultural interest involved with it. The vote for President, to which position Von Wedell-Piersdorf was chosen, afforded a test of the strength of the parties. The Opposition parties mustered 199 votes against the 157 of the Liberal Union and the Conservatives, the German Liberals, the Center and associated groups, the People's party, and the Social Democrats forming the majority. On the 26th the majority carried a bill to pay the members a daily fee and defray their traveling expenses. Bismarck declared that this new attempt to salary deputies was unconstitutional, and would be annulled by the Government. The deputies had free passes on the railroads, but they were recently withdrawn because the privilege had been abused. Bismarck averred that no factious majority in such a kaleidoscopic Parliament could impose upon him, who would not let himself be imposed upon by the whole of Europe. The want of pay was alleged by Stauffenberg to be the cause of scarcity of candidates, and was characterized as an obstruction to the freedom of elections, which was especially prejudicial to the Social Democrats. Bismarck said that he regarded the increase in the number of Socialist deputies as no mishap; the more there were the tamer they would become, and the more they would be governed by a sense of honor, and bring forward positive plans showing how the future of the world and of the constitution shapes itself in their minds. He wished that they would lay their El Dorado on the table of the House. If it were in his power, he would place a province at their disposal. The Social Democracy he regarded as a portentous sign, a *mene tekel* for the propertied classes, to warn them that all is not as it should be, that the hand of reform can be applied. If the Social Democracy and the dread that it inspired did not exist, the moderate progress in social reforms already accomplished would not have been possible; it was, therefore, useful in its effect on those who otherwise have no hearts for their poor fellow-citizens. The opposition of the Center, Bismarck declared, would not coerce the Government. The ninety-eight members of the Democratic factions he characterized as Republicans, and said he found no difference between a country where the majority can compel the monarch to dismiss his ministers and one under an elective President. To hand over the portfolios to the adverse majority, composed as it was of Conservatives, Clericals, the German Liberals, the Volkspartei, and the Social Democrats, would result in a ministry like that in England under Mr. Gladstone.

On the 3d of December the majority approved Windthorst's motion for the repeal of the law empowering the Government to expel or interne priests for the unauthorized exercise of ecclesiastical functions, although three weeks before the same measure, passed just before the close of the Reichstag in June, had been rejected by the Federal Council. Bismarck said that the law had not been applied in recent years, but was a useful weapon in case of disturbances in Prussian Poland. The Government had made numerous important concessions to the Curia, for which no returns had been made, and was therefore in a position to wait until it saw the color and stamp of the first Papal concessions, and would not yield a hair's-breadth.

The Project of Post-Steamship Subventions.—A proposal to subsidize a double line of steamers plying directly between German ports and eastern Asia and Australia was buried in committee after reaching the Reichstag with the approval of the Bundesrath. Bismarck made all his future colonial projects dependent on the passage of this measure. An annual grant of 4,000,000 marks was asked for. The postal subventions of the German Government amount at present to about 300,000 marks, distributed among ten lines running between the Hanse towns and American ports. England subsidizes thirty-eight lines at a cost of about £650,000, besides the subsidies received from the colonies. France expends about 25,000,000 francs a year on twenty-one lines in the postal service and 7,460,000 francs in premiums to other lines. The opponents of the bill argued that there are already too many ships on the sea, and that it is no detriment to German commerce to have the carrying-trade done by the English cheaper than Germans could do it, whereas it would be to lock up capital in steamships that require a bonus from the Government to keep them running. The bill was brought in again at the beginning of the next session and referred to a committee.

Bismarck's Colonial Policy.—When the post-steamer project was before the committee, Bismarck unfolded his colonial policy, which had nothing in common, he said, with the artificial methods of colonization pursued by other states. He did not propose to take possession of regions where there were no German interests, and incite by artificial means a German immigration after setting up an administrative system and establishing German garrisons there. His purpose was to extend the protection of the Empire to settlements that grow out of the German nation by the spontaneous enterprise of German subjects and exist in territories that do not stand under the recognized sovereignty of any other power. When Bamberger spoke of dangers of a colonial policy from the jealousy of the great naval powers, the Chancellor declared that he overestimated Germany's impotence on the sea; that a German alliance would be of great value to England and still more to England's opponents. France lay before the gates of Metz, in which region any injuries suffered at her hands by German subjects in distant climes would be requited.

In connection with the diplomatic negotiations with England relative to Angra Pequeña, Bismarck explained his colonial policy and offered to support England's interests nearer home if the English Government would assist Germany in the projects of colonial extension. The dispatch proposing this alliance, dated May 5th, indicated that if this arrangement could not be made, Germany would be under the necessity of seeking the support of France on similar terms. When Count Münster failed to secure this understanding, Prince Bismarck sent his son to London; but he also only obtained general assurances of good-will. Sir Edward Malet, Lord Ampthill's successor in the Berlin embassy, when Prince Bismarck gave the history of the negotiations, expressed regret, declaring that England never had the intention of thwarting Germany's colonial aspirations, and asked what Germany wanted. Did she want New Guinea or Zululand? Prince Bismarck replied that he was unable to make further explanations, as an understanding had already been established with France.

The main object of the colonial movement in Germany is to divert from the United States to regions under German rule and influences the stream of emigrants who in nearly all cases adopt American nationality and become lost to Germany forever. The colonial agitation has been in progress about five years. The idea is exceedingly popular. The great expansion of German industry and the constant growth of the foreign trade furnished a more practical reason for this policy which Bismarck first adopted when he proposed to sustain with Government credit the Samoan company. The adoption of this policy by the Government gave a fresh impetus to the colonizing movement. New trading settlements were established in the hope of Government protection and encouragement. A colonial association was founded, which counts 7,000 members. In 1884 a colonial bank with a capital of 30,000,000 marks was established at Hamburg for the promotion of direct dealings in money and bills of exchange with transoceanic trading centers. In August a meeting was held in Berlin at which a large sum was subscribed for the purpose of purchasing tracts in South Africa for an agricultural and trading colony. Subsequent to the West African annexations a colonial bureau was created as a department of the Imperial Government.

The Anglo-Portuguese Congo treaty was considered by the German Government as specially directed against German trading and colonial interests and those of France. It was the first ground for the coolness that arose between England and Germany. As Germany, France, and other powers refused to sign such a treaty, it was abandoned by Great Britain. The Congo Conference in Berlin was called by Germany in accordance with an understanding with France. (See CONGO, INTERNATIONAL ASSOCIATION OF THE.)

Angra Pequeña.—The district of Angra Pequeña, which was the first territory in Africa to be proclaimed a German protectorate, extends from the Orange river, the northern boundary of the British possessions, to latitude 26° 38′ south, and inward eighty miles from the coast. The harbor of Angra Pequeña, at the mouth of the Little Fish river, is the best on the southwest coast of Africa, except Walfish Bay. The district contains large copper deposits, besides iron, silver, and gold. Copper is still more abundant in Hereroland, the back country of Walfish Bay, on the north. Within three leagues of the coast are eleven guano-islands. The climate is endurable, but water can only be obtained from Cape Town, and costs 33*s.* a hogshead. Trading communications with the interior are difficult on account of a strip of barren sand along the coast, twenty miles broad. F. A. Lüderitz, a Bremen merchant, acquired the full sovereign and private rights over the district by a cession from the head chief in Bethania, and began mining copper. Bismarck determined to make a test case out of Angra Pequeña, with regard to the right often asserted by English statesmen to prevent other nations from establishing sovereign rights over territory in the neighborhood of English colonies. Besides the Lüderitz mining settlement in Angra Pequeña, the establishments of the Rhenish missionary in Hereroland created a German interest in southwest Africa. In 1880 the German Government propounded the question whether Great Britain claimed any territory on the coast north of the Orange river, and was in the position to afford protection to German settlers, to which a negative answer was returned. In November, 1882, after being informed by Lüderitz of his intention to establish a factory at Angra Pequeña, the German Government asked if England was prepared to protect the enterprise. Lord Granville, in February, 1883, declared that it was impossible. Count Münster then asked if England claimed territorial rights over Angra Pequeña. The question was referred to the Colonial Office, and not answered until Nov. 21, 1883. In his reply Lord Granville said that, although British sovereignty had not been proclaimed over the entire coast, but only over certain places, such as Walfish Bay and the islands at Angra Pequeña, the British Government would regard the assertion of any rights of sovereignty or jurisdiction by a foreign power between the boundary of the Portuguese possessions at the 18th parallel of south latitude and the boundary of Cape Colony as an invasion of its legitimate rights. The German Government asked what was the nature of the rights claimed, what they were based upon, and what means existed for giving protection to German settlers. To this note of Dec. 31, 1883, no reply was made for several months. It was referred to Lord Derby, and by him to the Cape Government. On April 24, 1884, Prince Bismarck instructed the German consul at Cape Town to announce officially that the Lüderitz settlement was taken under the protection of the German Empire. Count Münster was directed to inform the English Government on the same day. When pressed for an answer to this communication, and to the note of Dec. 31, 1884, Lord Granville explained that the matter was delayed by a Cabinet crisis at the Cape. On the 3d of June Bismarck, in a letter to Count Münster, said that he was not negotiating with the Cape Colony, but with the English Government, that his inquiry was not whether it might be convenient for Great Britain or Cape Colony to acquire other territory on the coast, besides Walfish Bay; that he was aware that England had no territorial rights except at Walfish Bay, and that she exercised no effective jurisdiction even there; that his object was to avoid any opposition of the English Government to the German Government's acceding to the desires of the Bremen settlers by obtaining an official declaration that the region was not claimed by Great Britain, which the Foreign Secretary could have convinced himself of by examining the official register of English colonial possessions. He declared that, according to his sentiment, Germany was not treated on a footing of equality, particularly when English statesmen announce a Monroe doctrine in Africa, and deny to other nations, and especially to Germany, the right to acquire unclaimed territory because it lies near Cape Colony. In a conversation with Lord Ampthill, Prince Bismarck said that the German Government could not deny protection to Germans who acquire lands and found enterprises in territories, whether in Africa or elsewhere, which are *res nullius*, and that if England were willing to take such establishments under her protection German traders who appealed to the protection of their Government could not be asked to transform themselves into British subjects. The relations of the German Government to such enterprises would be like those of the English Government to the East India Company in its early days; the settlements would be endowed with rights equivalent to those conferred under a royal charter, such as was granted to the North Borneo Company.

In Cape Colony counter-claims were set up against those of Herr Lüderitz to the coast and islands of Angra Pequeña. When the guano deposits in the small islands were first discovered, Sir Philip Wodehouse, the Governor of Cape Colony, issued a proclamation, in 1861, annexing them to Great Britain. They were leased to a firm of Cape merchants, who in 1863 obtained a deed of the coast district for seventy miles, including the harbor of Angra Pequeña, from one of the Hottentot chiefs. This chief was shortly afterward killed, and the lands he had sold were taken possession of by his enemies. When Herr Lüderitz came in the early part of 1883 to establish his colony, the British merchants disputed his title and an English naval officer was sent to adjust the difficulty. The vigorous assertion of a superior claim by the Bremen merchant and his appeal to the German Government impelled Prince Bismarck to raise the question of sovereignty with the British authorities and to proclaim a protectorate over Angra Pequeña. In June, 1884, Lord Granville finally informed Count Herbert Bismarck that the English Government had no objections to the German protectorate and would only interest itself in the rights of English subjects trading in those regions. On the 19th of July the protectorate was officially recognized by the English Government in a note of Lord Ampthill's which asserted the right of Great Britain to the islands at Angra Pequeña as well as to Walfish Bay, and made the recognition conditional upon the acquired rights of English subjects being respected, and upon security being afforded that no penal colony should be planted on the coast in question. The appointment of an Anglo-German commission to examine and decide all contradictory claims was proposed. In a dispatch, dated July 24, Prince Bismarck refused to bind Germany by any conditions, saying that the demand was unusual, and had never been imposed on England in relation to any of her colonies. Germany had no intention of establishing penal colonies, and would recognize the rights of English subjects according to the principles of international law. If disputes should arise, like those in the Fiji Islands, the German Government would show the same disposition to arrange the difficulties that the English Government evinced in that case. Lord Granville explained that the word "security" was used only to express the wishes of the British Government, which was ready to enter into a mutual agreement with Germany respecting penal settlements or to accept the verbal assurance given, and that the appointment of commissioners seemed the proper way to settle boundary and other disputes. About this time the German consul at the Cape wrote that Lord Derby was spurring on the Cape Government to annex the entire unoccupied coast of southwest Africa. On the 17th of August the German ambassador was instructed to inform the English Government that the annexation resolve of the Cape Parliament created a difficulty for the German Government, as it had adopted the same resolve. A telegram meanwhile arrived, reporting that on the 7th the commander of the Wolf had raised the German flag over all the coast except Walfish Bay. On the 19th a dispatch of Count Hatzfeldt's announced that by virtue of cessions obtained by German subjects from the native chiefs of Namaqua and Damaralands the region north of Angra Pequeña as far as the Portuguese boundary at Cape Frio, including the district surrounding Walfish Bay not subject to English sovereign rights, was taken under German protection. The Government could not refuse the demand for protection, as the treaties with the native rulers were in due form. The resolution of the Cape Government was therefore embarrassing, as it raised a claim of English sovereignty over the same territory. It was not expected, in view of the official declarations that the Orange river marked the northern limit of the English possessions, with the exception of a small district at Walfish Bay, that an attempt would be made just now, in competition with German aims, to extend English sovereignty beyond the designated boundaries. On the 26th the German Government complained that the reply to its note of Dec. 31, 1883, had been delayed six months, and the time employed to prepare rival British annexations. While the German Government waited in confidence for an answer, the English Colonial Minister in telegrams published in Cape Town encouraged the Cape Government to the resolutions that are intended to thwart the development of the German enterprises. The theory of the annexation of extensive unexplored coast and inland regions by a simple decree from a distance was declared to be opposed to the law of nations and traditional custom. The German representative was confidentially informed that the British Government intended to disallow the action of the Cape Parliament. The Cape Government subsequently reduced the annexations to the district immediately surrounding Walfish Bay, which had been incorporated in Cape Colony. Lord Granville, in an interview with the German *chargé d'affaires*, Baron von Plessen, attributed the whole difficulty to a misunderstanding. An English note of September 22 took cognizance of the hoisting of the German flag on the coast between latitude 26° and Cape Frio, and expressed a welcome to Germany as a neighbor in South Africa if she intended to found there a colony or a protectorate of a territorial character. The islands of Hollams Bird and Mercury Island, as well as those near Angra Pequeña, were claimed as British territory. The complaints of the German Government were declared to be due to a misunderstanding, due to a lack of knowledge of the obscure details of British colonial legislation and history. The German Government was asked whether it intended to exercise a territorial administration, or merely protect its subjects in that region, as, in the case of its assuming sovereign powers of a territorial character, the statutory jurisdiction of the Cape courts over British subjects in that part of Africa would cease. This query was answered in the affirmative, and the English proposal to appoint a mixed commission to decide international disputes was accepted. The commission took up first the question whether the Cape Government possessed any sovereign rights or its assignees any legal title to the guano-islands off the coast of Angra Pequeña.

Cameroons, Bimbia, and Little Popo. — Of the numerous and constantly increasing commercial stations of German firms, on the west coast of Africa, the most extensive are those of the Hamburg house of Woermann, which has been established in Liberia since 1852, and in Gaboon and Batanga since 1862. The Woermanns started a station in Cameroons in 1868, and have acquired a large share of the trade in this and other rich coast districts between Gaboon and the Niger. From Sierra Leone to the Congo there were sixty factories, belonging to fourteen Hamburg firms. Several Bremen houses were also represented. The unoccupied coast districts developed by German traders afforded an opportunity for the realization of a scheme of establishing protectorates in the wake of German trade, wherever Germans have acquired grants of land from native rulers. Dr. Nachtigal, then filling the post of consul at Tunis, was appointed Consul-General of the West Coast of Africa, and was sent out in May with several officers on the gunboat Möve, for the purpose of carrying out the secret plans of the German Government, his open instructions being to make an official inspection of the trading-stations on the West African coast and to raise the German flag over Angra Pequeña. In the beginning of July Dr. Nachtigal arrived at Little Popo, on the Slave Coast. German traders had acquired lands and established factories within a few miles of the boundary of the English colony of the Gold Coast. The English at Quitta attempted to oust them from this position by inciting the negroes to drive out the Germans, and cede the strip of coast to them. The Togno negroes threatened to destroy their factory if they did not depart within a week, and the English commandant was preparing to take formal possession of the territory in the name of Great Britain, on the ground that the Hamburg traders dealt in contraband articles, when the German commissioner appeared on the scene. On the 5th of July he hoisted the German flag at Bey Beach and at Bageida, taking under the protection of the empire a strip of coast twelve miles long. The Togno King Lorson ratified a treaty concluded some time before with the commander of the corvette Sophie, and promised to disturb the traders no more. From Little Popo Dr. Nachtigal proceeded to the Cameroons, in Guinea. The German merchants had been treating for some time with the chiefs Aqua and Bell for the cession of the Cameroons coast. The negotiations halted after the arrival of an English gunboat, the commander of which announced that the English consul would soon come to treat with the natives. When Dr. Nachtigal arrived, the treaties were speedily signed. The German flag was raised at Cameroons and Bimbia, and afterward at Malimba, Little and Great Batanga, and other points, establishing German sovereignty over the whole of this productive region from Cameroons to the boundary of the French possessions. Cameroons, opposite Fernando Po, is described as one of the most beautiful spots in Africa, and, as the rocky shore rises to the height of 3,000 feet and over, the climate is not unwholesome nor unpleasant. The Cameroon river is one of the richest of the oil-rivers. The whole coast supplies palm-oil in abundant quantities, besides ivory and other products. The trade of the Cameroon river amounts to 800,000 gallons of palm-oil, and 12,000 or 15,000 pounds of ivory. The trade is entirely by barter. The Dualla negroes of the Cameroons district, numbering about 20,000 souls, carry on the trade with the interior, exchanging the native products at the factories of Woermann, Jantzen, and some small English firms for cotton goods, gunpowder, rifles, salt, rum, gin, and tobacco. A line of steamers plies once a month between Bimbia and Hamburg. These annexations of Germany on both sides of the Niger region prompted England to declare a protectorate over the Niger delta to the limits of the German acquisitions on either side. From the Cameroons Dr. Nachtigal proceeded to Angra Pequeña, where the German flag was hoisted in August.

The acquisitions effected in 1884 give Germany over 750 miles of the West African seaboard, Portugal possessing some 800 miles, France 600, Great Britain 1,300, Liberia 350, and 850 remaining in native hands. A German squadron was stationed on the west coast of Africa, composed of four corvettes with 50 guns and 1,318 men. The vessels are among the most efficient of the German cruisers. On the island of Fernando Po the Spanish Government granted to Germany a spot for a coaling and consular station. Herr Rohlfs accompanied the German squadron, and afterward proceeded to Zanzibar to act as German consul, where he secured special arrangements with the Sultan, whose relations had been previously confined to Great Britain, which country exercised a quasi-protectorate over the former main outlet of the slave-trade. The district of Cheik-Said, near the Straits of Bab-el-Mandeb, was purchased by Germans in the autumn. On the east shore of South Africa, in Zululand, and in the Portuguese possessions, there were signs of German commercial activity and colonial enterprise. Bismarck intimated that if Zululand was not subject to English sovereignty, it was as open to German colonization as any other ownerless territory. The English anxiety about the German annexations in South Africa was not merely on account of the future trade of the Lake N'gami and upper Zambesi regions, but sprang from fears regarding the significance and consequences of the proximity of Germany to the Boer Republics. These fears were heightened by the cordial reception given in the summer to the Boer delegates in Berlin, and the confidential conferences of Mr. Krüger with the German Chancellor.

Annexations in the Pacific.—Later in the year the Germans developed a colonial activity in the Pacific. Their colonizing campaign in this quarter of the world was calculated to create more embarrassment for the British Government than their action in South Africa. In December, news that the German flag had been raised over the northern coast of New Guinea, or Papua, as far as the Dutch line, and in parts of the Admiralty Islands, in New Britain and New Ireland, the Duke of York's Islands, New Hanover, Marshall Island, and Anderson Island, created consternation in Australia. This action anticipated the Australian scheme of extension, which has been prepared with much excitement. When the British authorities refused to countenance the annexation of New Guinea by Queensland in 1883, the colonists were told that there was no danger of foreign acquisition. Lord Derby declared in Parliament that any attempt on the part of a foreign power to settle on the coast of New Guinea would be regarded as an unfriendly act. Subsequently, in deference to the wishes of the colonists, the home Government took possession of the southern coast, but left the northern and more valuable part of the island for the occupation of Germany. The Tonga, Gilbert, and Solomon islands were also included in the German scheme of a colonial empire in the South Sea. Later, a German protectorate was established over the Samoa group. Two German vessels stopped at the Samoan islands about the end of December, and their officers compelled the King to sign a treaty turning over the whole authority of the government to the representative of Germany. This action seems to have been a violation of an agreement made with England not long before, by which the two powers mutually agreed to respect the independence of the Samoan and Tonga islands. The King of Samoa wrote a letter to the Emperor William, protesting against the act of the German officers. In February, 1885, Earl Derby instructed the English consul in Samoa not to countenance any movement looking toward British annexation. The largest commercial interests in the unoccupied islands of the western Pacific are in the hands of Germans. The German South Sea Islands Trade and Plantation Company almost monopolize the cocoanut-oil trade of the Tonga and other groups, which amounts to 13,000 tons a year and is increasing. The import articles were of German, English, and American production. The plantations of the company in Samoa have an extent of 6,300 acres, and employ 1,152 laborers. Three German companies exported cotton, timber, tobacco, and rice from the Samoa and Tonga islands to the value of $1,000,000 in 1883.

GREAT BRITAIN AND IRELAND (UNITED KINGDOM OF), a constitutional monarchy of western Europe. The supreme legislative power resides in Parliament, which must be convoked annually, as supplies are only voted, and the mutiny act renewed, from year to year. The executive authority and the initiative in legislation are, practically, concentrated in the hands of the Prime Minister, who is appointed as the leader of the dominant party, and who selects his associates to preside over the departments and to prepare with him the schemes of legislation to be brought forward in Parliament. Prorogation is the legal death of Parliament; and legislation that is not finally enacted at the close goes for naught. There are no constitutional limits to the power of Parliament.

Victoria I, Queen of Great Britain and Ireland, and Empress of India, was born May 24, 1819, and succeeded her uncle, William IV, June 20, 1837. The heir-apparent is Albert Edward, Prince of Wales, born in 1841. The next heir is his son, Albert Victor, whose coming of age was celebrated Jan. 8, 1885. The present House of Commons first met in April, 1880. It is the twenty-second since the union, and the tenth of the reign of Victoria. Unless previously dissolved it will last until 1887. The House of Commons consists of 658 members. In 1884 writs were suspended in six constituencies, so that the number of representatives was 652. At the beginning of the term the House was divided as to parties into 203 Conservatives and 286 Liberals from England, 8 Conservatives and 52 Liberals from Scotland, and 24 Conservatives, 19 Liberals, and 60 Home-Rulers from Ireland; together, 235 Conservatives, 357 Liberals, and 60 Home-Rulers.

The House of Lords is composed of the hereditary nobles of England, new English peers created by royal patent, the English bishops who are peers *ex officio*, 28 Irish peers elected for life, and 16 Scottish representative peers elected for each succeeding Parliament. No new peerage can be created in Scotland, and in Ireland none until three existing peerages have become extinct; but in England peerages can be created for life or in perpetuity in any number. The House of Peers consisted in 1884 of 516 members, of whom 5 were peers of the blood royal, 2 archbishops, 22 dukes, 19 marquesses, 117 earls, 26 viscounts, 24 bishops, 257 barons, 16 Scottish representative peers, and 28 Irish representative peers. Only 37 of the peerages are older than the seventeenth century, and 315 are not older than the present century, no fewer than 166 having been created during the reign of Queen Victoria. The President of the House of Peers is the Lord Chancellor, the Earl of Selborne. The Speaker of the House of Commons is Arthur W. Peel.

The Cabinet in 1884 was composed as follows: William Ewart Gladstone, Premier and First Lord of the Treasury; Hugh C. E. Childers, Chancellor of the Exchequer; the Earl of Selborne, Lord High Chancellor; Earl Spencer, Lord Lieutenant of Ireland; Baron Carlingford, President of the Privy Council and Lord Privy Seal; Sir William Vernon Harcourt, Secretary of State for the Interior; Earl Granville, for Foreign Affairs; the Earl of Derby, for the Colonies; the Marquis of Hartington, for War; the Earl of Kimberley, for India; the Earl of Northbrook, First Lord of the Admiralty; Joseph Chamberlain, President of the Board of Trade; G. O. Trevelyan, who succeeded Mr. Dodson in October, when the latter was elevated to the peerage, Chancellor of the Duchy of Lancaster; Sir Charles W. Dilke, President of the Local Government Board. Lords Selborne, Spencer, Carlingford, Derby, Kimberley, and Northbrook are members of the House of Peers, the others of the Commons.

The Secretary of State for Ireland is Mr. Campbell Bannerman, who succeeded G. O. Trevelyan in October, 1884. The Vice-President of the Education Committee of the Privy Council is Anthony J. Mundella. A new department for agriculture was created in 1883, of which G. T. Brown is the chief.

Area and Population.—The area of the British Islands is 121,483 square miles. For area of the different geographical divisions, and the population as determined by the census of 1881, see "Annual Cyclopædia" for 1883. The official estimates for 1884 make the population of England and Wales 27,132,449, of Scotland 3,866,521, of Ireland 4,952,895; total, not including the adjacent islands and soldiers and sailors out of the country, 35,951,865.

The number of marriages in England in 1883 was 205,814, of births 889,815, of deaths 522,662, excess of births 367,153; the number of marriages in Scotland 26,855, of births 124,462, of deaths 76,867, excess of births 47,595; number of marriages in Ireland 21,490, births 118,224, deaths 96,388, excess of births 21,836.

Of the population of England and Wales in 1871, 77·8 per cent. belonged to the Anglican Church, 17·4 per cent. were dissenters, 4·6 per cent. Roman Catholics, and .02 per cent. Hebrews. In Scotland 43·9 per cent. belonged to the Established Church, 44·2 per cent. to the Free Church and other dissenting congregations, 9·5 per cent. to the Roman Catholic Church, 2·2 per cent. to the Church of England, and about 2 per cent. to the Hebrew confession. In Ireland according to the census of 1881 there are 3,960,891 Catholics, 639,574 Anglicans, 470,734 Presbyterians, 48,839 Methodists, and 54,268 of other denominations.

Of the 22,712,266 inhabitants of England and Wales in 1871, 213,254 were of Scottish birth, 566,540 born in Ireland, 70,812 born in the colonies, 25,655 in the adjacent islands, 139,445 in foreign countries, and 4,395 on the sea. Of the 5,174,836 inhabitants of Ireland in 1881, 69,380 were of English, 22,328 of Scottish, 8,325 of colonial, and 11,210 of foreign birth.

The total emigration from the United Kingdom from 1815 to 1883 was 10,444,992 persons, of whom 6,860,261 emigrated to the United States, 1,765,586 to British America, 1,437,243 to Australia and New Zealand, and 381,902 to other countries. There emigrated in 1883 183,236 English, 31,139 Scotch, 105,743 Irish, and 73,260 foreigners. The emigration to the United States comprised 93,392 English, 15,382 Scotch, 82,849 Irish, 60,068 foreigners, and 585 not determined; total, 252,266. The total emigration from the United Kingdom was 397,157 persons. The immigration in 1883 was 100,503, against 82,804 in 1882, and 77,105 in 1881. The number of emigrants from Ireland in 1884 was 76,043. Of these 14,063 were from Leinster, 24,368 from Munster, 21,733 from Ulster, and 15,733 from Connaught. Of the total number 70 per cent. were between the ages of fifteen and thirty-five. The number of females was 37,866.

The metropolitan district of London in 1881 contained 3,814,571 inhabitants, the police district 4,764,312. Liverpool contained 552,508; Glasgow, 511,532; Birmingham, 400,774; Manchester, 341,414, and its suburb Salford, 176,235; Leeds, 309,119; Sheffield, 284,508; Dublin, 249,602, the police district containing 349,648; Edinburgh, 228,190, and its suburb Leith, 61,168; Belfast, 208,122; Bristol, 206,874; Nottingham, 186,575; Bradford, 183,032; Hull, 154,240; Stoke-upon-Trent, 152,394; Newcastle, 145,359, and its suburb of Gateshead, 65,803; Dundee, 142,454; West Ham, 128,692; Portsmouth, 127,989; Leicester, 122,376; Sunderland, 116,542; Oldham, 111,343; Brighton, 107,546; Bolton, 105,414; Aberdeen, 105,054; Blackburn, 104,014.

Commerce.—The total values of the imports and exports of merchandise for the seven years ending with 1883 were as follow:

YEAR.	Imports.	Exports.
1877	£394,420,000	£252,346,000
1878	368,771,000	245,484,000
1879	362,992,000	248,783,000
1880	411,230,000	286,414,000
1881	397,022,000	297,083,000
1882	413,020,000	306,660,000
1883	426,892,000	305,437,000

The proportions of British products and of foreign and colonial products in the total merchandise exports were as follow:

YEAR.	Domestic exports.	Foreign exports.
1877	£198,893,000	£53,453,000
1878	192,849,000	52,635,000
1879	191,532,000	57,252,000
1880	223,060,000	63,354,000
1881	234,023,000	63,060,000
1882	241,467,000	65,194,000
1883	239,799,000	65,638,000

The value of the total exports per capita was £11 19*s.* 9*d.* in 1883, against £11 14*s.* 1*d.* in 1882; the value of the domestic exports £6 14*s.* 8*d.* against £6 16*s.* 10*d.* in 1882.

The imports and exports of the precious metals for 1883 and the three years preceding were of the following amounts:

YEAR.	GOLD.		SILVER.		TOTAL.	
	Imports.	Exports.	Imports.	Exports.	Imports.	Exports.
1880	£9,455,000	£11,829,000	£6,799,000	£7,061,000	£16,254,000	£18,890,000
1881	9,963,000	15,499,000	6,901,000	7,004,000	16,864,000	22,503,000
1882	14,376,000	12,024,000	9,243,000	8,965,000	23,619,000	20,989,000
1883	7,756,000	7,091,000	9,468,000	9,323,000	17,224,000	16,414,000

The imports from European countries amounted in 1883 to £189,761,000, from American countries to £117,480,000, from other parts of the world to £20,969,000, the total from foreign countries to £328,210,000, from the British colonies to £98,682,000; the exports to European countries to £92,202,000, to American countries £50,311,000, to other foreign countries £13,809,000, the total export to foreign countries £156,322,000, to British possessions £83,477,000. The trade between Great Britain and the principal foreign countries and the colonies in 1883 was of the following amounts:

COUNTRIES.	Imports.	Exports.
United States	£99,289,000	£27,878,000
India	38,888,000	31,874,000
France	33,686,000	17,568,000
Australia	25,986,000	24,216,000
Germany	27,908,000	18,768,000
Netherlands	25,116,000	9,506,000
Russia	20,976,000	5,087,000
Belgium	16,178,000	8,828,000
Canada	12,284,000	9,156,000

The imports of articles of consumption in 1883 amounted to £201,638.000, cereals representing £71,803,000, animals, meat, and provisions £52,988, colonial wares £45,383,000, fruits and vegetables £20,505,000, tobacco £2,861,000, and fermented liquors £8,098,000. The exports of this class of commodities amounted to £11,231,000, the exports of animals and animal food-products being £3,385,000, of fermented liquors £2,630,000, and of groceries £2,458,000. The imports of raw materials amounted to £135,789,000, the exports to £46,478,000, the former being made up of minerals of the value of £6,148,000, raw and partly manufactured metals of the value of £9,691,000; hides, skins, and leather of the value of £17,119,000, textile materials of the value of £83,265,000, and timber of the value of £19,521.000, the latter of coal of the value of £10,646,000, minerals of the value of £925,000, metals of the value of £30,279,000, hides, skins, and leather of the value of £3,598,000, and textile materials of the value of £1,030,000. The total value of the exports of manufactured articles was £156,320,000, of the imports £42,508,000. The exports of glass and pottery were valued at £3,417,000, the imports at £2,209,000; exports of metal manufactures £8,439,000, imports £5,910,000; exports of machines, cars, and vessels £16,956,000, imports £511,000; exports of leather and fur manufactures £3,560,000, imports £2,728,000; exports of yarns £18,808,000, imports £3,072,000; exports of textile manufactures £100,708,000, imports £35,423,000; exports of paper manufactures £1,445,000, imports £1,286,000; exports of art products £537,000, imports £629,000; exports of wood and straw manufactures £1,275,000, imports £538,000; exports of books, etc., £1,175,000, imports £202,000. The total value of miscellaneous imports was £47,007,000, of the exports £25,770,000. The imports of waste products and manures were £2,662,000 in value, the exports £2,162,000; imports of drugs, colors, and chemicals £13,250,000, exports £7,607,000; imports of gums, fats, and oils £14,918,000, exports £1,616,000; imports of various articles £16,177,000, exports £14,385,000.

The returns for the first six months give the quantities of some of the leading articles of import, as compared with the corresponding part of the preceding years, as follow: wheat 19,905,285 cwt., against 31,717,993 cwt., from America 11,657,260 cwt., against 15,913,294 cwt.; wheat-flour 7,420,641 cwt., against 9,004,996 cwt., from America 5,164,343 cwt., against 6,405,940 cwt., barley 4,927,841 cwt., against 7,266,130 cwt.; oats 5,398,272 cwt., against 7,510,000 cwt.; maize 12,774,691 cwt., against 16,026,485 cwt.; the total value of the grain imports £22,092,702, against £34,793,409; raw sugar 10,578,359 cwt., against 10,256,334 cwt., from Germany 3,346,789 cwt., against 3,085,082 cwt.; petroleum 15,582,358 gallons, against 33,202,385 gallons; raw cotton 8,897,877 cwt., against 9,403,674 cwt.; jute 3,168,185 cwt., against 5,063,578 cwt.; wool 356,047,986 pounds against 341,679,521 pounds. Among the exports the shipments of coal amounted to 11,098,062 tons, against 10,608,734 tons, value £5,234,520, against £4,933,907; iron and steel 1,771,171 tons, against 1,972,379 tons, value £12,469,890, against £14,458,457. The exports of pig-iron were 648,468 tons, against 714,819 tons, of rails 333,850 tons, against 507,069.

Agriculture.—The report of the agricultural committee of the Privy Council for 1884 shows a continued decrease in the area under crops, with an increase in the total cultivated area, due to the extension of pasturage. In Great Britain the area under cultivation was 81,000 acres greater than the previous year. The total area under cultivation in England in 1884 was 24,844,000 acres, the area of permanent pasture 12,198,000, an increase in the total of 1·36 and in pasture-land of 8·58 per cent. in five years. The wheat area was 64,000 acres greater than in 1884, which year, however, showed a smaller area than any year since 1866. In barley there was a decrease of 128,000, and in oats of 60,000 acres. The total area under grain-crops was 133,900 acres below that of 1884, and 946,700 acres less than in 1874. In Ireland there was an increase in the area under cultivation, due mainly to the reclamation of land for stock-feeding purposes. The total area planted to potatoes was greater than in any year recorded except 1881, being 565,000 acres in Great Britain and 798,300 acres in Ireland. Market-gardens show the slight increase of 3,500 acres, not enough to indicate a disposition on the part of the British farmer to follow Mr. Gladstone's advice and devote his attention to the making of jam. Agricultural horses show a decline. In cattle there was an increase of 306,362 head. The number of sheep was 26,000,000, 1,000,000 more than in 1883, but 4,000,000 below the census of 1874. The average size of farm holdings in England was 137½ acres, in Wales 67, in Scotland only 10 acres. The wheat-crop of 1884 was above the low average of 25¼ bushels for the last nine years, but not above the average of 29½ bushels an acre in the period preceding 1866.

After the enactment of the cattle-disease bill, certain Englishmen interested in the raising of cattle in Wyoming Territory appealed to the Government to declare the Northwest of the United States exempt, upon proof that it was free from disease. The Privy Council afterward ruled that the act did not apply to the whole United States. The Wyoming stock-raisers, represented by Moreton Frewen, proposed a scheme for the benefit of British agriculture, according to which store-cattle would be imported from the Northwest through Canada, to be fattened by British farmers, instead of being fed up by American farmers and imported as fat cattle or in the form of meat. To this plan more objection was to be expected from the Canadian breeders of cattle than from the English authorities.

Navigation.—The entries of vessels engaged in foreign commerce show in 1883 a total tonnage of 32,105,080 tons, the clearances 32,856,678. The tonnage entered in 1882 was 30,318,938, in 1860 12,172,785. Of the total tonnage entered, 23,239,544 tons were British. The steam tonnage entered in 1883 was 23,920,023 tons, against 21,331,444 in 1882 and 2,549,000 in 1860; the steam tonnage cleared, 24,367,587 tons; the steam tonnage entered carrying the British flag, 19,548,811 tons. The total tonnage of vessels entered with cargoes in 1883 was 26,310,318 tons, cleared 29,373,160. The coasting tonnage in 1883 was 43,235,517 tons, cleared 36,596,187 tons, against 41,535,274 tons entered and 35,358,775 cleared in 1882.

The mercantile navy in 1883 comprised 17,906 sailing-vessels, with a total capacity of 3,471,000 tons, against 3,577,000 tons in 1882, and 6,241 steamers of 3,725,000 tons, against 5,795 steamers of 3,332,000 tons in 1882. The mercantile navies of the colonies contained in 1883 12,849 sailing-vessels and 288 steamers of an aggregate tonnage of 1,935,000 tons. The total tonnage engaged in the lesser coasting-trade in 1883 was 934,000, the number of sailors employed 50,171; in the greater coasting-trade 142,000 tons, the number of sailors employed 5,308; in long voyages 5,950,000 tons, the number of sailors employed 145,248.

Railroads.—The length of railroads in operation in 1883 was 13,202 miles in England, 2,964 in Scotland, and 2,502 in Ireland, total 18,668, against 18,457 miles in 1882. The total cost of construction was £784,921,000, the gross receipts £71,062,000, net receipts £33,964,000.

The railroads are all private property subject to state control. An act of 1854 requires the railroad companies to afford reasonable tariffs, protects the public from unequal and prejudicial treatment, and secures through transportation. In 1873 the railway commission was created for the better enforcement of these provisions. This commission, which was continued by the acts of 1878, 1879, and 1882, has accomplished little besides the duties of inspection, such as seeing that tariff lists are kept at the stations, that canals owned by railroad companies are kept in navigable condition, etc. The maximum rates of 1*d.* to 3*d.* per ton per mile for the five classes of goods are not observed by the railroad companies. The differential rates, which are less for American meat slaughtered in Glasgow than for native meat, and 60 per cent. more for Manchester goods for export than for the same destined for the London market, were complained of before the Parliament committee of 1881. Competitive rates did not exist. The capital account of the railroads shows a rapid tendency toward concentration, the sum of the ordinary shares being less in 1883 by £500,000 than in 1882, while £32,000,000 of new debts were contracted by the existing companies during the year for the extension of their lines.

Posts and Telegraphs.—The post-office in 1883–'84 forwarded 1,322,000,000 letters, 154,000,000 post-cards, 437,000,000 newspapers, 13,800,000 internal postal orders, of the total value of £25,045,000, 200,000 postal orders for the colonies, and 600,000 for foreign countries. The number of letters sent in England was 1,112,000,000, in Scotland 122,000,000, in Ireland 88,000,000. The receipts in 1880–'81 were £6,733,427, the expenses £4,135,659.

The length of the state telegraph lines in 1882 was 43,633 kilometres, of the wires 193,227. The number of dispatches in 1883–'84 was 32,843,120, 27,606,846 in England, 3,299,428 in Scotland, and 1,936,846 in Ireland.

The Army.—The regular army establishment provided for in the army estimates for 1884–'85 comprises 134,401 infantry, 16,998 cavalry, 34,041 artillery, 5,723 engineers, colonial corps of 2,489 men, and 8,253 in the administrative services; total, 201,905 officers and men, with 23,210 horses. The regular army reserve musters 50,750 officers and men. The battalions in Egypt are on the war footing. Of the total force provided for in the estimates 107,818 were in the United Kingdom, 61,591 in India, 25,097 in the colonies, and 7,399 in Egypt. The militia counts on its lists 150,930 officers and men, the volunteer force 247,661. The native Indian army musters 120,882 officers and men, making the total war strength 772,128 men. There are besides an armed constabulary in Ireland about 14,000 strong, a native military police of 190,000 men in India, and militia and volunteer bodies in many of the colonies. There were with the colors in the regular army at the close of 1883 191,273 officers and men, with 23,282 horses and 584 cannons. The army of occupation in Egypt was 15,000 strong in September, 1884.

The alarm which has lately been felt regarding the efficiency of the English military defenses was heightened by the result of investigations into the management of the transport and commissariat services in the Afghan and Egyptian wars. In the first Afghan campaign 60,000 camels and 30,000 other baggage animals were lost from neglect and starvation. In the Egyptian war bales of hay were accepted from contractors which were filled with outside wrappers, or contained bricks and stones, or in which the hay was coarse and ill-smelling. The flour was moldy. The commissary-general ordered no inspection before it was sent, nor did the chief of the staff in Egypt examine the supplies. Many of the mules that were bought were so weakened by poor feeding that they were not ready for service till the battle of Tel-el-Kebir. Half the rations were lost through the break-down of transport.

The Navy.—The ironclad navy in September, 1884, comprised 3 iron and 3 steel frigates of over 10,000 tons, 2 of the latter under construction, 8 iron frigates of over 8,000 tons and 2 of steel under construction, 12 iron, 2 steel, and 2 wooden frigates of over 6,000 tons, and 4 smaller iron broadside vessels; 2 iron turret-ships of over 10,000 tons, 6 of iron and 2 of steel of from 8,000 to 10,000 tons, and 10 of less capacity; and 2 iron and 2 steel rams of special construction. There were besides 11 armed vessels of antiquated design and 5 more stationed in India and the colonies. The navy contained altogether 73 ironclads, 309 steamers, and 147 sail-ships and pontons. The total number in commission was 247, of which 133 were stationed in British waters, 23 in the Mediterranean, 19 in China, 19 on the east and west coasts of America, 4 in Brazil, 10 in India and East Africa, 9 in South and West Africa, and 9 in Australia. Of the 28 ironclads of over 6,000 tons 6 formed the Channel squadron, 6 were in the first reserve, 6 were in the Mediterranean squadron, 4 were distributed in America, China, and Australia. The Inflexible has 24 inches of armor at the water-line, the Ajax, Agamemnon, Colossus, Edinburgh, Collingwood, Rodney, Howe, Camperdown, Benbow, and Anson 18 inches.

While Lord Northbrook was still in Egypt, an alarm was raised by the newspapers as to the naval strength of England, as compared especially with the French navy. The subject was taken up by naval critics and the opposition politicians, and soon became a matter of discussion in Parliament and a cause of public disquietude. The alarmists pointed out that in recent years the expenditure on the English navy had not been proportionate to the growth of the national wealth and commerce. The development of the naval armaments of France and some other Continental nations was relatively much more rapid, their expenditure being a third more than twenty-five years ago, while England spends no more on her navy than she did at that period. The aggregate displacement of the armored ships of all classes in the British navy, old and new, completed and unfinished, is 437,210 tons, which is nearly equaled by the French navy with a displacement of 425,000 tons, while the Italian navy is measured by a displacement of 127,000 tons, the Russian by one of 105,000 tons, the German by one of 104,000 tons, and the Austrian by one of 60,400 tons. Sir E. J. Reed contended that the French ships of the first class are individually superior to the English because they have a complete belt of armor, while the English vessels have side-armor for only about one third of their length and a bomb-proof deck from stem to stern six or seven feet below the water. Above this the cells and cork chambers are exposed, except amidships. He would reckon only half the tonnage of such ships as armored tonnage. In the matter of guns the French were greatly superior to the English, who clung to muzzle-loaders after they were abandoned by the other naval powers, but the new type of breech-loader with which the English navy is being armed is said to be better than the French. In torpedo-boats and torpedoes England was also behind some of the Continental powers. The Conservatives could not make the question the subject of a party attack because naval construction has proceeded faster under the present than under the late administration, though expenditure for repairs had been much less. Lord Northbrook, in comparing the English with the French fleet, stated that England had ready for present action 30 ships of modern types, with a displacement of 210,430 tons, while France had 19, of 127,828 tons; and that of obsolete types there were 16 English ships, of 115,520 tons, to 12 French, of 58,066. The greater activity of the French in naval construction was explained by the circumstance that they had adhered to the system of iron-plated wooden vessels while England was providing herself with a fleet of armored iron vessels, and were in consequence now obliged to build their navy over again. The impression which prevailed as the outcome of the controversy was that the English navy was still considerably stronger than the French, but not more than equal to the French in combination with the Italian or the German. There was a general demand that the navy should be strengthened so as to be able to cope with such combinations of naval powers as there was any likelihood of being formed against England. When the panic was started, the Liberal politicians treated it with contempt; yet in the autumn session the Government yielded to the clamor, and, notwithstanding the gloomy financial outlook, asked for an additional sum of £5,525,000 for the navy, to be distributed over five years. Of this, £3,100,000 was for new ships, £1,600,000 for guns, and £825,000 for the fortification of English coaling-stations. The new vessels include 4 ironclads of over 10,000 tons of the Conqueror type, with 18-inch armor, two 110-ton guns in turrets, an 18-ton gun in the stern, 12 6-inch guns in a steel casemate, and with a speed of 15½ knots; 2 rams of 3,000 tons displacement of the Polyphemus type; 5 belted cruisers, of 5,000 tons each, steaming 17 knots an hour; 10 scouts or torpedo cruisers, of 1,500 tons each; and 30 first-class torpedo-boats. The present Government had already increased the expenditure for naval construction from £3,124,000 in 1880–'81 to £3,891,000 in 1884–'85, and the rate of construction from about 8,000 to 12,000 tons per annum. Including the expenditure of the War Ministry for naval guns, the increased expenditure was in the neighborhood of £1,000,000 per annum.

Finance.—The total receipts and disbursements for the past five financial years, ending March 31, were as follow:

YEAR.	Receipts.	Expenditures.
1878-'79	£83,115,972	£85,407,789
1879-'80	81,265,055	84,105,754
1880-'81	84,041,288	88,107,924
1861-'82	85,822,282	85,472,556
1882-'83	89,004,456	88,906,278

The finance accounts for 1888–'84 make the total receipts of the Exchequer £87,205,184 and the expenditures £86,999,564. The gross receipts from customs were £19,814,558, of which £9,088,486 was from tobacco, £4,228,861 from spirits, £4,268,784 from tea, and £1,268,842 from wine. The gross yield of the excise duties was £23,552,968, of which £14,888,419 was from spirits and £8,657,141 from malt. The license-tax on the sale of liquors and tobacco yielded £2,014,848; licenses for coats of arms, male domestics, carriages, plate, dogs, hunting, etc., £1,582,784; the duty on railroad passengers, £747,700. The stamp duties produced £11,846,587, of which £1,890,180 comes from contracts, £4,178,508 from wills, £3,351,977 from legacies and successions, £942,728 from receipts, and £751,302 from bills of exchange. The house and land taxes were £2,918,929 in amount; the income-taxes, £10,978,162; the net receipts of the post-office, £7,756,688; of the telegraphs, £1,747,929; of the domains, £517,762; the interest on advances for local works and on Suez Canal shares, £1,196,128; various receipts, £4,288,056. There was a balance in the treasury on April 1, 1883, of £6,972,730.

The financial year 1883–'84 gave only a small surplus, with no prospect of improvement in 1884–'85. No change was made in taxation except a slight relaxation of the carriage-tax. The consideration of the "death-duties" was postponed until local taxation should be dealt with. The failure of the parcels-post experiment induced the Government to postpone for another year the reduction of the rate for telegraphing to 6*d.* a message. Toward the close of the year a deficit of £1,500,000 for 1884–'85 was foreseen, instead of the expected surplus of £250,000, while the increase in the war estimates promised to leave the treasury £10,000,000 behind at the end of the coming year.

The consolidated debt on the 31st of March, 1884, amounted to £640,631,095, the capital value of the terminable annuities to £91,682,269, and the unfunded debt to £14,110,600; total, £746,423,964. The deduction of the probable sum of recoverable credits reduces the total net amount to £717,220,892, including the savings-bank deficit to be made good by the Government.

Mr. Childers carried through in the session of 1884 a bill for the conversion of 3 per cent. consols at the option of the holders into 2¾ or 2½ per cents by exchange at the rate of £102 of the former and £108 of the latter for every £100 of the old stock. The suggestion of a conversion of the ordinary kind in the open market raised an outcry among the holders of consols, and the timid measure adopted was objected to by those who consider English consols to be a sacred and inviolable institution. The conversion was expected to reduce the annual burden by £1,310,000, but the holders refused to exchange their bonds.

The Chancellor of the Exchequer failed to get passed a coinage bill which proposed to provide for the redemption and recoinage of light gold coins by debasing the half-sovereign, replacing the standard coins of that denomination by token ten-shilling pieces. Tampering with the standard of this coin was calculated, according to the opinion that prevailed, to impair the international character of the English coinage, and to afford opportunities for fraud.

The Session of Parliament.—The fifth session of the tenth Parliament of the reign of Queen Victoria met February 5. The speech from the throne mentioned the Congo treaty with Portugal, which was afterward repudiated owing to the opposition of the powers, the negotiations for a revision of the Transvaal convention, and the suspension of the order for the evacuation of Cairo and the reduction of the army of occupation in Egypt, on account of events in the Soudan which led to the dispatch of Gen. Gordon to report on the situation, and assist in the withdrawal of the Egyptian garrisons. The legislative programme embraced a measure "for the enlargement of the occupation franchise at parliamentary elections," a bill for extending municipal government to the whole metropolis, forming part of a scheme for the extension and reform of local government which should include the regulation of the liquor-traffic, and minor measures on merchant-shipping, railway regulation, municipal elections, the Government of Scotland, education and Sunday-closing in Ireland, and intermediate education in Wales. The tactics of the Government in evading a decisive vote on their Egyptian policy, which was repeatedly challenged by the Opposition, and those of the Opposition in blocking and retarding the extension of the suffrage and endeavoring to force a dissolution, took up the attention of Parliament to such an extent that the session was almost entirely barren of positive legislation. Mr. Bourke assailed the Egyptian policy of the Cabinet in the debate on the address, and a vote was taken without a discussion, which was promised later. Mr. Chaplin forced the Government to promise to give effect to the resolution of Parliament of the preceding summer on the restriction of cattle imports for the prevention of cattle-diseases. Mr. Parnell's amendment to censure the Irish Executive for interfering with public meetings, and leaving the disturbances of Orangemen in Ulster unpunished, was rejected. On February 12 Sir Stafford Northcote proposed a resolution, based on the refusal of the Government to define Gen. Gordon's position, or their intentions regarding the relief of Tokar, declaring that the recent lamentable events in the Soudan were due to the weakness and hesitation of the Government. Mr. Gladstone accepted Sir Wilfrid Lawson's phrase of "rescue and retire" as describing his policy. Lord Hartington declared that on the Red Sea coast they could not allow anarchy to prevail, nor suffer any other European power to dominate, as it commanded the road to India. In the division the Cabinet was sustained by 311 votes to 262. The proclamations of Gen. Gordon concerning slavery, the price set on Osman Digma's head by Admiral Hewett, the operations of Gen. Graham, and other subjects, gave the occasion for fresh attacks. On March 15 the Government escaped by the narrow majority of 111 against 94 on a vote of censure proposed by Mr. Labouchere for the unnecessary waste of human life in the Suakin operations, which received unexpected support from Conservatives, a proceeding characterized by Sir William Harcourt in an audible exclamation as a "dirty trick." Three weeks later Sir Stafford Northcote provoked a vehement reply from the Premier on a motion to adjourn, prompted by the obstinate silence of the Government concerning Gen. Gordon. Mr. Gladstone's rhetorical and dialectical powers were never so copiously and brilliantly displayed as during this session, but his frequent use of invective betrayed the infirmity of age as well as the embarrassment of his position. The next memorable attack on the Government was Sir Michael Hicks-Beach's vote of censure proposed May 12, which elicited from Mr. Gladstone the admission that if Gen. Gordon was in peril the Government was bound to give him all reasonable aid. Mr. Forster and Mr. Goschen, with about thirty Liberals, abstained from voting, while the Irish members supported the motion, leaving the Government a majority of only 28, or 303 votes against 275. The protestations of Conservatives and Independent Liberals on the announcement of the negotiations with France drew from the Premier a pledge that the results should be submitted to Parliament. When the Anglo-French agreement was announced, June 23, he declared that the arrangement was dependent on the decisions of the conference, which would stand or fall as Parliament determined. A vote of censure on the refusal to disclose the financial proposals was offered, but when Mr. Gladstone found a day, in accordance with his promise, the House, on the motion of Mr. Goschen, postponed the discussion as inopportune. After the failure of the conference, the departure of Lord Northbrook for Egypt to inquire and advise was announced, and on August 12 a vote of credit of £300,000 was obtained to enable the ministers to take measures for sending assistance to Gen. Gordon.

Immediately after the address was voted, Sir Henry Brand, since raised to the peerage as Viscount Hampden, resigned the speakership. Arthur Peel, the youngest son of Sir Robert Peel, was elected his successor, February 26.

On the 11th of February, Mr. Bradlaugh appeared at the table and went through the form of taking the oath. Sir Stafford Northcote moved that the act be not recognized, which motion was carried by 280 votes to 167. The member for Northampton was, furthermore, excluded from the precincts of the House upon declining to pledge himself not to disturb its proceedings. He accepted the Chiltern Hundreds, and was re-elected, whereupon his exclusion was again voted, February 21.

The new Speaker did not once put in force the powers of repression given by the new rules of procedure. The experiment of devolution, or the reference of measures to standing committees for the elaboration of details, though substantially a failure in the previous session, was renewed, subject to a condition that no bills reported from the committees should be considered by the House later than the end of July. It proved less a success than before. Mr. Chamberlain's important measures, which were to be submitted to the Committee on Trade, met with such opposition in the lobby that they were never considered by the committee. Of the bills referred to the law committee, one was abandoned, and another so altered after it was returned to the House that it was lost in the upper house. The Government introduced a large number of bills of importance and advanced them to the second reading. The cattle-diseases bill, the government of London bill, the merchant-shipping bill, the railway regulation bill, a corrupt practices at municipal elections bill, a criminal law amendment bill, a medical acts amendment bill, a purchase of land bill for Ireland, the Irish Sunday-closing bill, an hours of polling bill, and several others were simultaneously presented while the attention of Parliament was entirely absorbed by Egyptian affairs and the struggle over the franchise bill.

The London government bill, which came next to the franchise bill in the order of importance, was introduced by Sir William Harcourt, April 8. It proposed to transfer to the new municipality, which would include in its jurisdiction the entire metropolitan area as defined by the act of 1855, the powers, property, and obligations of the City Corporation, the commissioners of sewers, the Lord Mayor, the Court of Aldermen, the Common Hall, the Ward-Mote, the Metropolitan Board of Works, the magistrates of Middlesex, Kent, and Surrey within the specified limits, the burial boards, and the vestries. The poor-law administration, elementary education, and the police were reserved. The municipal government was to be vested in a Common Council, which could delegate its functions to local elective boards, and in a mayor and a deputy-mayor, who should be paid officials. One of the first duties of the municipality would be to acquire for the public the rights of the gas and water companies.

Mr. Chamberlain's merchant-shipping bill was intended to put an end to the evils that the acts for the protection of seamen had failed to abate. To prevent ship-owners from making a profit by the loss of unseaworthy vessels, it prohibited over-insurance and double insurance, and made underwriters liable only for actual losses; it created an implied contract of seaworthiness on the part of the owners; and it extended to seamen the employers' liability act. The President of the Board of Trade tried to win the consent of ship-owners to his cherished scheme, and, when his negotiations failed, made a speech, which was an appeal from the House to the country, and withdrew the bill. His bill for enduing the railway commissioners with real powers met with the same fate, as it was opposed not only by the railway companies, but by the farmers and traders also, who objected to the legalization of terminal charges and other changes in the law in favor of the companies.

The criminal law amendment bill was intended for the protection of young girls. It contained provisions enabling the police to clear the streets, and creating new offenses against public morals that condemned it in the eyes of lawyers. The bill to extend to the four exempted cities and to make perpetual the Irish Sunday-closing law was obstructed by a few Irish members, both Nationalists of the extreme type and Conservatives. The existing act was prolonged by the expiring acts continuance bill. The Parnellites forced the Government to exclude Ireland from the operations of the bill against corrupt practices at municipal elections. The law of evidence amendment bill, which revived and made permanent certain provisions of the crimes act for the examination of prisoners, was carried in the face of their opposition. The most important Irish measure proposed was the purchase of land bill, which provided for the advance to tenants by the Government of the whole of the purchase-money for the acquisition of their holdings in fee simple. Mr. Trevelyan declared that no such liberal offer had ever been held out by any government to any class of citizens; that it would end the block in the land market which prevented the operation of the purchase clauses in the act of 1881, and would induce the tenant-farmers to purchase their holdings, and thus erect a bulwark of honesty and order in a class of peasant proprietors. The principle of the bill was accepted on all sides, but provisions for a local guarantee were criticised, and other parts of the bill were opposed by both Parnellites and Conservatives. All these and the other principal Government measures were withdrawn after the vote in the House of Lords on Lord Cairns's amendment to the franchise bill, when the Prime Minister announced on the 10th of July that an autumn session would take place, and that in consequence the Government was compelled to make a sweeping and impartial sacrifice of the ministerial measures. One of the principal bills that were finally enacted was the cattle-diseases act, forced on the Government by the Tories. It was introduced into the upper house February 14. The Duke of Richmond obtained a large majority for his amendments, throwing upon the Privy Council the responsibility of determining whether the laws of foreign countries were strict enough to justify the admission of imports instead of resting satisfied with the protection afforded by foreign laws unless there was proof of the contrary, and removing the limitation of two years given to the bill by the Government. In the House Mr. Dodson proposed to restore the bill to its original shape, but the committee decided against the ministerial proposal, and this decision, with some hesitation, was accepted by the Government. The bill became law May 19. In the early part of the session the Government was defeated by the same combination that insisted on precedence for the cattle-diseases bill, who carried a resolution in favor of immediate relief for local tax-payers. Mr. Broadhurst proposed a bill for the enfranchisement of leaseholders, which gave an opportunity to Lord Randolph Churchill to avow advanced views on the subject of the rights of property as the representative of the Tory Democracy. The Marquis of Salisbury brought forward the project of social reform of which he is the special advocate, that of securing better dwellings for the working-people, and a parliamentary commission of both houses was appointed to inquire into the housing of the poor. Parliament was prorogued August 14. Of the fifty-four Government measures that became law the most important were the conversion of stock act for lightening the burden of the national debt, the act for the repression of corrupt practices at municipal elections, the act relating to the contagious diseases of animals imported from abroad, and the act for the extension of the hours of polling in boroughs. Among the minor acts was one enabling a husband or a wife to give evidence in criminal proceedings instituted by either against the other for the protection of their property. This is a complement to the act of 1882, conferring rights to hold separate estates on married women. Another act substitutes fines for imprisonment as a penalty for disobeying decrees for the restitution of conjugal rights. The Manchester ship-canal bill was pressed to a second reading, though strongly opposed. The objections to the project are based upon the danger to the navigation of the Mersey. The people of Liverpool have been taught to believe that if the canal is made, the channel of the river will silt up and Liverpool will share the fate of Chester and become an inland city. Captain Eads, the engineer of the Mississippi improvement, who was retained by the promoters of the enterprise, pronounced these fears groundless. A law was passed prohibiting the erection of buildings except for religious purposes on disused burial-grounds, putting an end to the practice of speculative builders of acquiring leases of old cemeteries in London for the erection of dwelling-houses. Another of the minor enactments prohibits overcrowding on canal-boats, and provides for the education of the boatmen's children. Others limit summary jurisdiction in England, and, as regards infant offenders in Ireland, enable public corporations to execute trust deeds in respect to public libraries and museums, give building societies and their members access to courts for adjudication of disputes with the society respecting mortgages and contracts, lengthening the period of naval service by two years, and restricting the powers of naval courts-martial.

The Debate on the Franchise Bill.—The representation of the people bill was introduced in the House of Commons by the Prime Minister on February 28. Declaring that the enfranchisement of capable citizens was an addition to the strength of the state, he recounted the pledges given by the Liberal party, and described the prevailing sentiment of the country in favor of the extension of suffrage. The ministerial measure left the existing rights of franchise in the main untouched. Though there was a provision to check the creation of "fagot votes," i. e., votes conferred by the possession of real estate of insignificant value acquired for the purpose, yet the simple property qualification was not assailed, the condition of residence was not insisted upon, nor was any attempt made to carry out the doctrine, widely held among Liberals, of "one man, one vote." Under the existing system many property-holders have ten or a dozen votes in different boroughs, and some as many as twenty. The bill proposed to enlarge the £10 occupation franchise in boroughs, so as to make it include land without buildings, and to create a service franchise that would confer votes on householders that occupy tenements in virtue of some office or appointment and do not pay rent. The chief feature of the measure was the extension of the borough franchise, or the household and lodger franchises, and the franchise derived from property, with the £10 limitation thus enlarged, to the counties. This is the most important enlargement of the franchise since the reform act, increasing the electorate of the United Kingdom from 3,000,000 to 5,000,000. The act of 1832 added only 500,000 to the voting population, while the act of 1867 increased the electorate from 1,136,000 to 2,488,000. Mr. Gladstane refused to deal with redistribution in the same measure, on the ground that it was impossible for Parliament to get through with the whole question, as applied to the entire kingdom, in a single session. He insisted upon the extension of the franchise being granted in Ireland as well as in England and Scotland. He indicated the general features of the measure for the redistribution of seats, which was to be the first order of business in 1885. The distinction between borough and county districts would be preserved, and the reapportionment would stop short of equal electoral districts. The representation of Scotland would be enlarged and that of Ireland not decreased, because those portions of the United Kingdom needed a relatively larger representation to secure attention to their wants. The Conservatives assailed neither the principle nor the scope of the proposed enfranchisement, but opposed the measure because it was not accompanied with a redistribution bill. Lord John Manners's amendment condemning the measure as imperfect, and refusing to go on with it until the Government disclosed their scheme of redistribution, was rejected by a majority of 340 to 210, and the bill was read a second time April 7. The inclusion of women, moved by Mr. Woodall, was supported not only by Northcote and Manners, who battled by the side of Disraeli for woman suffrage, but by Conservatives that were formerly opponents of the principle, while many Liberals, including even members of the Government, abstained from voting in disregard of a peremptory whip. Mr. Gladstone said that it involved a new question, which, as affecting the political status of half a million persons, ought to go before the country. On the third reading, June 26, Mr. Gladstone uttered an impassioned warning of the crisis that the Opposition would produce if they carried out their avowed intention of throwing out the bill in the upper house. The Opposition, after asserting that the Lords would be justified in demanding the presentation of a complete scheme, left the House and allowed the bill to pass *nem. con.*, as was recorded in the journals on Mr. Gladstone's suggestion.

The franchise bill was read a first time in the Lords, June 27. Lord Cairns gave notice of an amendment to the effect that the House, while prepared to discuss any well-considered and complete scheme for the extension of the franchise, could not assent to a measure without provision for redistribution or any security that the enfranchisement would not go into operation before redistribution became law. Some of the Conservative peers objected to this course as reckless and unnecessary, but the Duke of Richmond and the main body of the party supported the amendment, and the Marquis of Salisbury insisted on again precipitating a conflict between the two houses, intimating that the Lords would only bow to the will of the country as manifested in a fresh general election. The amendment was carried on the second reading by 205 to 146 votes. To show that the question at issue between the two parties was one of procedure and not of principle, the House of Lords recorded a resolution expressing its assent to the principles of representation contained in the bill. Though in form the Cairns amendment was not a rejection of the measure, it was thus intended and accepted. The ministry at once decreed a "massacre of the innocents," which embraced nearly the whole legislative work of the year, in order to prorogue Parliament and arrange for an autumn session.

Before the division on the second meeting

Earl Granville approached Lord Cairns with proposals for a compromise. The ministry offered to bring in and press forward a redistribution bill in the ensuing session, but the Conservatives demanded the postponement of the operation of the franchise bill until Jan. 1, 1886, unless Parliament fixed an earlier date.

The Franchise Agitation.—After the vote of the Lords and during the recess, England was convulsed with political excitement. The agitation for the abolition of the House of Lords was renewed. The tide of popular excitement rose higher than after the rejection of the Irish land bill. The impressive admonition of Gladstone at the close of the debate on the franchise bill gave an impulse to the movement. The Radical leaders were more aggressive and unrelenting than before. The venerable John Bright denounced the Peers as an "arrogant and unpatriotic oligarchy," and avowed that, "unless English freedom be a fraud and a sham, the English people will know how to deal with a titled and hereditary chamber whose arrogance and whose class selfishness has long been at war with the highest interests of the nation." John Morley uttered the watchword of the day when he declared that "no power on earth can henceforth separate the question of mending the House of Commons from that other question of mending or ending the House of Lords." On July 21 a mass-meeting of over 80,000 men took place in Hyde Park, London. Similar demonstrations in other parts of the country revealed a powerful current of feeling among the English democracy hostile to an hereditary chamber. The Marquis of Salisbury denounced the Liberals for "descending into the streets," and characterized the popular manifestations as "legislation by picnic." The Tories themselves soon sought the support of popular manifestations, and in the course of the campaign brought together assemblages that approached in their dimensions those of the Liberals. In the counter-demonstrations Lord Randolph Churchill did good service to his party, and by the magnitude of his popular following demonstrated the vigor of the progressive school of Conservatism of which he is the exponent. The Conservative manifestations deserved better the name of picnics than those of the Liberals, because, as a rule, they were not open public meetings, but were guarded by the device of tickets of admission from disturbance and interruption, and were often rendered inviting by feasts, excursion-trains, and other descriptions of largess. These questionable and novel adjuncts to political assemblies provoked the scorn of their opponents. One of the large Conservative demonstrations was held at Birmingham in October. The Liberals arranged a counter-demonstration in adjoining grounds, and, breaking down a partition, interrupted the feasting and speech-making, changing the scene to riot and havoc. The Conservatives, although many of them, when the measure was first proposed, had opposed the enfranchisement of the rural householders as a dangerous advance toward democracy, now professed as much zeal as the Liberals for the extension of suffrage. They attacked the foreign policy of the Government and their legislative impotency in order to show that their mandate was exhausted, their energy run down, and gave color to the Marquis of Salisbury's demand that they should go to the country on a question of "the revision of the Constitution." They were accused of a design to "gerrymander" the constituencies and forcing the Conservatives to accept a redistribution unfavorable to their party interests rather than leave the districts as they were with a widened franchise. Mr. Gladstone declared himself that he must have the franchise bill as a means of pressure upon Parliament to pass a redistribution bill.

The Autumn Session.—The autumn session was opened on October 23. The negotiations with the Conservative leaders were continued during the recess, but it was not until some weeks after Parliament opened that an agreement was reached. The Government brought in a redistribution bill as soon as the franchise bill was passed. As it was based on the compact made between the leaders in their secret conferences, it passed smoothly through all its stages and became law before the adjournment for the Christmas holidays. The new grants for naval construction, the vote for the Soudan operations, and other matters, were also disposed of. In the negotiations with the Opposition leaders concerning redistribution, the Government were desirous of increasing the number of two-member districts, while the Conservatives advocated a system of grouping boroughs and proportional representation. On both sides of the House there were members long committed to the principle of minority representation. The Government expressed a willingness to adopt single-member divisions. This compromise was embraced by the Conservatives, who deemed that it would give larger scope to the influence of property and of local social influences. Many were opposed to this plan, apart from all party considerations, because they considered that it would tend to lower the character of parliamentary representation, since, if the country were cut up into petty wards, each returning its member, the wards would be likely to fall into the American custom of choosing residents to represent them, men of merely local prominence, politicians of the vestryman type, instead of going outside to obtain men of approved ability and national distinction. It was the same question as that between list and district voting which divided France. Mr. L. H. Courtney resigned his office of Financial Secretary because of this, and because no provision was made for minority representation.

The Extension of the Franchise.—The franchise bill extends the borough franchises to the counties. The borough franchise created by the act of 1832 was limited by a property qualification of £10 clear annual income from real estate. This takes the place of the £50 renting qualification and the £12 rating qualification established in the rural districts by the acts of 1832 and 1867. The household and lodger franchises established in 1867 in the boroughs created then the principal accession of new voters, and will have the same effect in the counties by their extension to the entire electorate under the new act. Every citizen of full age and not legally incapacitated, who has occupied a house for twelve months and paid his rates, or who is the inmate of a house under conditions that permit of classing him as a lodger, as defined by law, can have his name placed on the register as a voter for the district, whether borough or county, in which he resides. The class of householders is increased by those that occupy any dwelling by virtue of any office, service, or employment, and have exclusive possession of the premises. The act contains disfranchising provisions that are intended to restrict multiple voting. In cases of joint ownership, except as regards partners in business, or of persons that have derived their interest by inheritance or marriage, only one person will be allowed to register. The equalization of the borough and county franchise will add over 1,300,000 voters to the register in England and Wales, over 200,000 in Scotland, and over 400,000 in Ireland. Of the 5,000,000 voters in the United Kingdom, four fifths are qualified simply as householders. The act goes into effect nominally Jan. 1, 1885, but the newly enfranchised electors will not be admitted to vote before the beginning of 1886, as their names can not be registered legally before the autumn of 1885.

The Redistribution of Seats.—The reapportionment of electoral districts increases the membership of the House of Commons from 652 to 670. Of the 18 additional seats England is given 6 and Scotland 12, the number of representatives from Ireland and from Wales remaining the same as before. Boroughs containing fewer than 12,000 inhabitants lose their separate representation; boroughs with fewer than 50,000 will be represented by one member instead of two; boroughs with from 50,000 to 165,000 will still send two members; and boroughs with over 165,000 inhabitants will receive additional members in the proportion of one for every 50,000 or 60,000 inhabitants in excess of that number. All boroughs returning more than one member, except those which retain the old two-member system, by virtue of containing between 50,000 and 165,000 inhabitants, and counties returning more than one member, are to be divided into as many separate districts as there are members to be returned. The seats lost to districts that are disfranchised are to be divided among the boroughs and counties that are under-represented. The bill establishes generally the single-member system in place of the two-member system, which was the rule. Except by dividing constituencies into districts returning one member each, there is no provision for proportional or minority representation. There are 73 boroughs in England, about a dozen of them returning two members, the rest one, which are disfranchised, as containing fewer than 15,000 inhabitants; 2 of the Scotch groups of boroughs that lost their representation, and 22 Irish boroughs. The number of seats released is altogether 111 under this schedule. The number of boroughs that lose one member on account of having fewer than 50,000 inhabitants is 34 in England and Wales, and 3 in Ireland. The totally disfranchised boroughs are represented in the present Parliament by 54 Liberals, 44 Conservatives, and 4 Home-Rulers; the boroughs losing one member by 42 Liberals, 17 Conservatives, and 6 Home-Rulers. The total number of seats set free under both schedules is 160. In the new Parliament England will have 465 of the 670 seats, Wales 30, Scotland 72, and Ireland 103. The metropolis was formerly divided into 10 boroughs, represented by 22 members, the city sending 4 and the nine metropolitan boroughs 2 each. Henceforth the metropolitan area, increased by 7 boroughs taken from the adjoining counties, will consist of 38 boroughs, represented by 62 members. The boroughs are all divided into single-member districts, except the City of London, which will have two members, as it contains 50,526 inhabitants. It was a Conservative borough, and the reduction of its representation in accordance with the population standard was a cause of complaint because it counts as many as 26,227 registered electors. The representation of Liverpool is increased from 6 to 9 members. Birmingham will have 7 instead of 3 members; Manchester 6 instead of 3; Leeds and Sheffield 5 each, instead of 2; Bristol 4, instead of 2; Bradford, Kingston, Nottingham, Salford, and Wolverhampton 3 instead of 2 members each; and Swansea 2 instead of 1. In Scotland, the representation of Edinburgh is raised from 2 members to 4, Glasgow from 3 to 7, Aberdeen from 1 to 2, and in Ireland, Dublin and Belfast from 2 to 4 members each. Outside of the metropolis there are 5 new boroughs created, represented by 1 member each. The English counties, hitherto represented by 172 members, will have 241, the largest increase being in Yorkshire and Lancashire. The Irish counties have their representation increased from 63 to 85 members. Scotland receives 7 additional county members. While some parts of the country, such as Lancashire, have their representation largely increased, others, like Dorset, suffer a large diminution. Prominent members on both sides were affected by disfranchisement.

Parnellite Attacks on the Irish Executive.—The Irish party in Parliament kept up an incessant attack on the Castle government during the year. The Maamtrasna murder-trials and the case of certain officials of the Irish administration that were indicted for immorality, were the leading subjects of animadversion. The aged Myles Joyce and others were convicted and hanged for the murder of the Joyce family in Maamtrasna, committed Aug. 17, 1882. Two of the convicted murderers made dying declarations, admitting their own guilt and exculpating Myles Joyce. Two informers subsequently confessed to priests that their testimony was false, and that six of the accused men were innocent. The Catholic Archbishop of Tuam interviewed these men and other witnesses, and, having convinced himself that there was foul play, petitioned Earl Spencer to investigate the affair. There was great excitement over the matter in Ireland before it was brought up in Parliament by Mr. Harrington at the beginning of the autumn session. The Irish Home-Rulers accused the prosecuting attorneys of suppressing evidence in favor of the convicted men, and of taking no steps to bring the guilty ones to justice, though they had evidence against them sufficient to warrant proceedings. Under the direction of George Bolton, the Crown solicitor, the informers were allowed to listen to the testimony of the other witnesses, and were in a measure coached by the law officers to make their stories agree. The testimony of the boy, Patrick Joyce, the only survivor of the murdered family, was suppressed in as far as it conflicted with the other accounts. The murder was actually committed by hired assassins at the instigation of a money-lender named Casey, who was actuated by ordinary criminal motives. He was arrested the morning after the murder, but immediately released. The Irish party charged that the Crown officers, in their desire to make out a case of agrarian murder, chose to proceed against the men accused by suborned witnesses, and when exculpatory and contradictory evidence came out in the preliminary examinations it was suppressed, as well as evidence telling against the actual criminals. Mr. Harrington also possessed documentary evidence, showing that the jury was packed by the counsel for the Crown, who kept a memorandum of the religious and political convictions of all the jurors on the panel from which the petit jury was drawn, and the likelihood of their voting for conviction. Accusations of practices like these were made against the prosecuting officers of the Crown, and especially George Bolton, their chief, about the time of the renewal of the crimes act, and afterward on the reopening of Parliament. Reports of Bolton's lack of principle in his relations with his wife and with his creditors were repeated in Parliament to show his unfitness for public office. In the trial of Secretary Cornwall, of the Irish post-office, and other Dublin officials for unnatural crime, Cornwall was discharged on the ground that he had softening of the brain when the crimes were committed, although he was reported as restored after the conclusion of the trials. The case was not pressed against any of the prisoners, for the sake of saving the Castle government from odium, as it seemed to the Home-Rulers. Their attacks drove Mr. Trevelyan to resign, a result that was no satisfaction to the Irish leaders, who respected the personal character of the Irish Secretary, and only assailed the system with which he, and in a higher degree the Viceroy, was identified.

Dynamite Conspiracies.—The Irish conspirators that carry on a dynamite "war" against England were not all suppressed when Whitehead and his accomplices were brought to justice in 1883. There were signs of fresh plots hatched in Dublin, New York, Paris, and Brussels, and of the activity of agents in London, Liverpool, and Birmingham. In Dublin, besides the "Invincibles," the existence of a band called the "Avengers" was reported, whose task was the "removal" of obnoxious witnesses, judges, and jurors. A quantity of infernal machines and dynamite flasks and grenades was discovered at Birmingham, placed there by one Daly, who was arrested at Liverpool with dynamite bombs on his person. Daly, an old Fenian, was convicted and sentenced for life, and his fellow-conspirator Egan for twenty years. On Feb. 25, 1884, a violent explosion occurred at the Victoria station in London, with which these conspirators were probably connected, though no direct evidence was adduced. The possession of the bombs was construed by the court as an act of treason-felony, as proving an intention to levy war against the Queen. The explosion at the Victoria station was followed by attempts at three or four other stations. Shortly before, occurred explosions at Edgware Road and Westminster, on the Underground Railroad. Later explosions took place in St. James's Square and in Scotland Yard, under the very eyes of the police. In none of these cases was any trace found of the perpetrators. These occurred on the night of May 30, just before the explosion in Scotland Yard, and a simultaneous attack was made on the building of the Junior Carlton Club. The stone and iron work at the rear entrance of the club-house in St. James's Square was shattered and the kitchen destroyed. In Scotland Yard the destruction was greater, although the quantity of dynamite used was probably the same, and uniform with that found in black bags in the attempt to wreck several railway-stations on February 26. A portion of the building of the Criminal Investigation Department, consisting of heavy brick and stone work, was brought down by the force of the explosion. Yet the chief damage was done to a public-house opposite. At the same time a quantity of dynamite was found at the foot of the Nelson monument. This was of the kind known as "American." On the same night a third explosion occurred near a Government building in St. James's Square. The explosions followed one another in quick succession at about nine o'clock in the evening. On December 13 the dynamite war was renewed by an explosion of a large quantity of dynamite, estimated to be about fifty pounds, against one of the piers of London Bridge. The stone-work under the water was found to be cracked and disturbed. The lamp-posts on the bridge were twisted out of shape, the glass in warehouses on both sides of the river was broken, and several persons were knocked down, but none seriously injured. In January, 1885, occurred the most serious of the dynamite outrages. On one of the days when visitors are admitted to view the Houses of Parliament a package of dynamite was exploded near the Speaker's chair, and another in the lobby. The woodwork of the benches and gallery in the House of Commons was blown into splinters, and the stone carvings in the entrance-hall still more seriously damaged. A policeman who attempted to remove the infernal machine in the chamber was seriously injured. Another policeman was wounded, but none of the visitors sustained injury. The dynamite was supposed to have been brought into the building by woman visitors. At the same hour there was an explosion in the Tower of London, which was crowded at the time with sightseers, of whom, however, none were seriously harmed. The police were unable to trace any of these crimes to their authors.

The Condition of Ireland.—The agricultural condition of Ireland has deteriorated since the passage of the land act in a marked degree. The landlords have ceased to expend anything for keeping up or improving their lands. Much of the improvement in cultivation that took place after 1849 has been lost. Arable land has steadily relapsed into pasture, while the grass has grown thin and become overspread with rushes. Nine cold and damp years have lowered the quality of the grass and the fertility of the soil. The position of the tenant farmers has been much bettered by the land law, yet they are too poor to purchase live-stock, nor have they the ready money to employ a sufficiency of labor at its price, which is double that which formerly prevailed, and about the same as in England. The large emigration has caused the rise in wages. The condition of the people is better than it has been for generations. Beggars have disappeared, and, except on the western seaboard, the people are well fed and clad comfortably. The agricultural statistics for 1884 show that the area under crops was 4,872,969 acres, 1·8 per cent. less than in 1883. The decrease in Leinster was 1·8, in Munster 0·4, in Ulster 1·7, in Connaught 0·9 per cent. The area under grass was 10,846,308 acres, an increase of 153,861 acres; the extent of bog, marsh, and barren mountain land 4,753,810 acres, a decrease of 89,726 acres; the area under tillage 2,910,239 acres, a decrease of 94,678 acres. There was a decrease in the acreage of flax, potatoes, and grain crops, as well as in all the cereal crops. The farmers evinced no satisfaction in Mr. Trevelyan's land-purchase bill, which proposed to advance them the money to acquire their holdings at twenty years' purchase by paying their former rent for that period, or their present rent for thirty-three years, believing that the landlords would in the end accept four or five years' purchase. Although there was a complete prostration of the market for the sale of land, the price of tenant rights constantly rose in the market. In agrarian crime there was a mitigation and diminution, which was greeted with unabated satisfaction in the address at the opening of the autumn session.

The Skye Crofters.—The royal commission appointed to inquire into the condition of the Skye crofters, reported in favor of legislation for the relief of the peasantry of the western Highlands. Within a generation rents had been largely raised, the pasturage of the people had been taken away for sheep-walks and deer-forests, so that they could no longer raise sheep for clothing themselves, and their women had to take the place of ponies, and notices to quit had doubled. The friends of the islanders organized an agitation among them, and on their behalf throughout the country. When the parliamentary session passed without affording a prospect for redress, the crofters determined to attempt the tactics that had succeeded in Ireland. The local authorities showed a zeal for repression, which betrayed a desire to provoke a conflict. When the Crofters' League forced three persons to attend a meeting against their will and to give an account of their conduct, a re-enforcement of the police was asked for, and six policemen were sent to Skye. They were met upon landing by a large body of peasants armed with sticks, and compelled to re-embark. The Government then sent a large force of police and two hundred marines, while the crofters organized in military fashion and patrolled the island to prevent the landing of police or soldiers. The friends of the crofters warned them of the folly of such a conflict, so that a collision was avoided. Mr. Macfarlane's resolution in favor of giving effect to the recommendations of the royal commissioners was adopted by the House of Commons.

A hundred years ago the Highlanders were a prosperous and contented class. They had free grazing on the hills, which were covered with their black cattle, although the law about 1745 had transferred to their chiefs and lairds all the communal rights of the clan. When sheep-farming was introduced, the chiefs found these proprietary rights a source of great wealth, and they consequently drove their clansmen off the best lands. Grouse-shooting doubled the incomes of the landlords, and shut the people out of a large part of the area that was left to them. The conversion of the country into deer-forests, which has taken place recently, has deprived them of the last of their grazing-lands, and crowded them together on their cramped family crofts, where, when the fish do not run and their little patches of oats fail to ripen, they have to endure periodical starvation. Among the suggestions of the royal commissioners was a proposition to restore the communal character of the pasture-lands, which were taken from the people and bestowed upon the loyal chiefs as a reward after the insurrection of the Pretender. The restoration of the Highland township or village community, the construction of harbors and piers for the fishing population, loans for the purchase of boats and tackle suitable for deep-sea fishing, improved means of transportation to the markets, and subventions in aid of emigration, are the remedies suggested by the royal commission for the distress in the western Highlands.

The Employers' Liability Act.—The act holding employers liable for accidents occurring to workmen from the lack of proper precautions for their safety, or other negligence, was decried at the time of its passage, in 1881, as a measure that would embitter the relations between workmen and employers, and greatly increase the financial risks in the manufacturing branches. The effect of the act has been insignificant, except in inducing masters in dangerous employments to look somewhat more carefully to the condition of their machinery, and supply the precautions required by law. The courts decided that it did not destroy the doctrine of "common employment," to the great disappointment of the working-men. The number of suits brought in three years was only 448, the total amount of damages awarded £18,124. The principal reason why the effect of the act has been so insignificant is that employers induce their workmen to sign away their rights under the act. On this account the trade-unionists demand that the law should be amended so as to prevent employers from contracting themselves out of their statutory liability.

Industrial Depression.—The year 1884 was marked by an increasing depression in the manufacturing trades that in some branches amounted to almost complete stagnation. The ship-building and subsidiary trades had long been idle, and the iron and coal industries, depending largely on this branch and on foreign orders for iron, which have been few since the decline of railroad-building in the United States and the development of the iron industries of the Continent, were greatly depressed. In the ship-building districts most of the working-men were out of work, and the reserve funds of their trade-unions were nearly exhausted at the approach of winter. The engineering branches in Lancashire resorted to short time, and the cotton-trade was dull. In South Wales some of the largest mining establishments closed down altogether. In the industrial districts of the metropolis, about 30 per cent. of the wage-earning classes were estimated to be out of work. The depression of the sugar industry in East London threw many out of employment. It was reported in the autumn that 11,000 men were out of work in Sunderland, 4,000 at Glasgow, 25,000 on the Tyne and Wear, 10,000 in Monmouthshire and Glamorganshire, and that, of the 60,000 men employed on the London docks, one third were idle, and one third employed only four days in the week. Half-time was becoming the rule in Lancashire, Staffordshire, and the other great industrial centers. The depression in the sugar-trade, and the crisis in the sugar-growing industry of the British West India Islands, led to an agitation for countervailing duties to offset the foreign bounties. Such duties, it was argued, would not be opposed to the doctrine of free trade. The ministry inclined to the view that if the Germans were willing to furnish the people of England with sugar for less than it cost, it would not be to the general interest of the nation to refuse it for the sake of a limited class.

The Crisis in the Sugar-Trade.—The West India sugar-planters were reduced to sore financial straits by the competition of beet-sugar in the English market. They were threatened with total ruin from the loss of the American market also, in consequence of the Spanish-American treaty. They demanded that the English custom should be restored to them by means of countervailing duties for their protection, and, when the home Government turned a deaf ear to their complaints, declared that the British connection was worthless to them, and annexation to the United States their only hope. Annexation to Canada was also discussed, but with less favor, because the Canadian market is too small to consume their sugar. In a report drawn up for the Board of Trade, Mr. Giffen said that the production of sugar, omitting China, India, and other outlying countries, had increased from 1,428,000 tons in 1853–'55 to 3,564,000 tons in 1880–'82, and over 4,000,000 tons in 1883. British cane-sugar increased from 261,000 tons in the former period to 419,000 tons a year in 1880–'82; foreign cane-sugar from 972,000 to 1,499,000 tons. Beet-sugar constituted 14 per cent. of the total production in 1853–'55, and 46 per cent. in 1880–'82, the proportion of British cane-sugar declining from 18 to 12, of foreign cane-sugar from 68 to 42 per cent. Since 1868 the product of the British planters has held its ground in proportion and in quantity. The consumption of cane-sugar in Great Britain increased from 389,000 to 647,000 tons, that of refined beet-sugar in a much greater proportion. From the British possessions the imports declined. The total consumption amounts to 1,088,000 tons, equal to 68 pounds a head of the population, valued at £30,000,000. The reduction in price due to foreign bounties was computed at £5,000,000, exceeding the total production of the British West Indies and British Guiana, and twice the capital invested in English refineries. For a long time the British Government took no steps to satisfy the wishes of the planters. At length, in October, negotiations were opened at Washington for a treaty of reciprocity between the United States and the West India colonies. The aim was to induce the United States Government to reduce 50 per cent. the duties on raw sugar in consideration of the abolition of the import duties on flour, lumber, corn, kerosene, lard, etc. The import trade of the West India Islands, not only in these peculiarly American products, but in many manufactured articles, has long been mainly with the United States, while the United States long ago supplanted Great Britain as the chief customer for West Indian sugar. The American Government demanded a wider basis for the treaty, and the exclusion of the reciprocity arrangements from the most-favored-nation clause in treaties with other nations. On December 4 a draft of a treaty was forwarded to Lord Granville. Sir John Lubbock estimated that the Colonial Government would lose $900,000 revenue to $12,500,000 sacrificed by the United States. Yet the English Government refused to entertain the proposal, declaring that the concessions were more apparent than real.

Commercial Treaty with Mexico.—After a long interruption of diplomatic relations with Mexico, they were resumed after protracted negotiations, and a preliminary agreement for a treaty of commerce was signed. Pending the conclusion of a new treaty of commerce and navigation, this convention secures the most-favored-nation treatment for six years. The formal reopening of diplomatic intercourse was proposed in a letter of Lord Granville's, dated April 19, 1883, and the agreement was signed Aug. 6, 1884.

The Colonies.—The British colonial possessions cover about one seventh of the land-surface of the globe. They are grouped in forty administrative divisions, and are divided into three general classes. The colonies, with representative institutions, possess self-government in all matters except such as are deemed to be of imperial concern, over which the Crown retains the right of veto. The colonies possessing representative government are controlled in their administrative affairs by the Colonial Office. India and the Crown colonies have no effective representative institutions, but are under the absolute authority of the British Government and its representatives. The Crown colonies are Heligoland, Gibraltar, Malta, Falkland Islands, Guiana, Trinidad, Ascension, Mauritius, St. Helena, Sierra Leone, Aden and Perim, Cyprus, Hong-Kong, Labuan, the Straits Settlements, the Feejee Islands, Rotumah, Jamaica and Turks Islands, Gambia, the Gold Coast, and Lagos. Those possessing representative government are Western Australia, Natal, Ceylon, and the Bahamas, Bermuda, Windward, and Leeward islands. The other colonies control their own legislative and administrative affairs. The table on page 381 gives the area and population of the colonies, dependencies, and military and naval stations composing the British colonial empire, with the statistics of commerce and finance in most of the colonies for 1882.

The railroad mileage in operation in British colonies at the end of 1882 was as follows:

COLONIES.	Miles.	COLONIES.	Miles.
British India	10,144	Mauritius	92
Canada	7,580	Trinidad	48¼
Australia, etc	6,071	Jamaica	25
Cape Colony	969	Guiana	21
Ceylon	178		
Natal	98½	Total	25,172¾

The telegraph lines of India, Ceylon, Australasia, and Cape Colony, had an aggregate length of 55,958 miles.

Annexations.—After the declaration of a German protectorate over the Cameroons and Little Popo, Consul-General Hewitt proclaimed a British protectorate, in August, over the lower Niger basin, which act was confirmed by the Government. At the Congo Conference, England agreed to make the Niger an international stream, but insisted on retaining the administration of the police and supervision, to which the powers finally acceded. The trade of the Niger delta is entirely in English hands, as one of the large French companies, recently established, was in 1884 consolidated with the English company in possession of the field, while the other has retired from the lower Niger. In the river and its mouths British gunboats have maintained order, the slave-trade has been abated by British efforts, and the English consul has concluded numerous treaties with the tribes on the Niger and Binue. In South Africa a protectorate was declared over Bechuanaland (see CAPE COLONY), and in November the English Government yielded to the desires of the Australians, to the extent of proclaiming the annexation of the southern shore of Papua (see PAPUA).

Imperial Federation.—The movement for a federal union between Great Britain and the colonies gains force among Englishmen and colonists alike. A conference to consider the question of imperial federation, which met in London July 29, included many of the prominent English statesmen of both political parties, as well as representatives, official and non-official, of the principal colonies. Englishmen who look into the future feel that, if the colonies separate from the mother-country, Great Britain, with France and Germany, will fall back into the second rank of nations, while the United States and Russia will take the lead in power and importance. The difficulties in the way of federation lie principally in the separation of imperial from domestic concerns. The colonies are willing and desirous now to bear their fair share of the cost of the defense of the empire, and of all expenditures incurred for the common benefit, provided that they have a voice in determining questions of imperial policy. The colonists have felt aggrieved at the selfish indifference shown by the Eng-

POSSESSIONS.	Area, sq. miles.	Population.	THOUSANDS OF POUNDS STERLING.					Navigation, thousands of tons.
			Revenue.	Disbursements.	Debt.	Imports.	Exports.	
Heligoland	5⅜	2,001	..	..	..	..	..	..
Gibraltar	1⅞	18,381	50	55	..	..	..	8,540
Malta	119	149,782	206	206	884	26,615	25,988	9,595
Total Europe	126¼	170,164						
Cyprus	4,200	186,084	..	..	..	..	..	..
India	877,959	201,858,897	78,696	71,118	156,821	60,486	88,068	7,869
Ceylon	24,702	2,768,984	1,140	1,171	1,687	4,871	8,411	8,212
Straits Settlements	1,445	428,884	442	420	70	16,291	14,711	5,638
Hong-Kong	32	160,402	252	228	..	..	..	9,915
Andaman islands	2,508	14,628	..	..	..	..	..	..
Nicobar islands	684	5,500	..	..	..	..	..	..
Labuan	30	6,298	5	5	..	127	183	49
North Borneo	23,009	150,000	..	..	..	..	..	..
Aden	12	34,860	..	..	..	..	..	..
Perim	5	50	..	..	..	..	..	..
Total Asia *	983,994	205,684,092						
New South Wales	309,175	817,468	21,911	20,057	99,220	63,844	50,633	10,867
Victoria	87,884	906,225						
Queensland	668,224	248,255						
South Australia	903,425	297,771						
Western Australia	975,920	30,766						
Tasmania	26,375	122,479						
New Zealand	104,403	517,707						
Feejee islands	8,034	130,079	111	110	254	308	191	88
Rotumah	14	2,680	..	..	..	..	..	..
Total Australasia †	3,068,454	3,109,480						
Cape Colony	221,950	1,249,824	4,808	5,521	16,098	9,661	4,569	2,039
Natal	18,750	402,667	658	738	2,102	2,214	782	488
Sierra Leone	468	60,546	66	68	73	399	420	502
Gambia	69	14,150	27	20	..	174	255	161
Gold Coast	600	408,070	105	117	..	398	340	348
Lagos	73	75,270	45	44	..	429	581	358
St. Helena	47	5,059	12	11	9	94	43	105
Mauritius	713	359,822	955	828	698	2,842	4,019	540
Ascension	34	27	..	..	..	..	..	..
Total Africa ‡	248,104	2,574,955						
Dominion of Canada	3,470,392	4,324,810	6,955	7,064	32,018	24,879	21,279	7,987
Newfoundland	40,200	179,509	228	265	312	1,740	1,459	602
Bermudas	19	14,559	32	31	8	277	109	190
Honduras	7.562	27,452	46	45	..	238	251	177
Bahamas	5,390	43,521	46	44	56	217	161	266
Turks islands	169	4,732	9	7	..	27	25	173
Caicos islands	213	1,878	..	..	..	..	..	..
Jamaica	4,193	580,804	577	578	1,239	1,822	1,549	787
Cayman islands	225	2.400	..	..	..	..	..	..
Leeward islands	703	119,399	118	121	66	524	625	856
Windward islands	830	314,666	269	268	46	1,681	1,801	1,825
Trinidad	1,754	154,281	487	441	502	2,400	2,452	840
British Guiana	76,000	257,473	459	429	896	2,100	3,209	649
Falkland islands	6,500	1,588	8	8	..	87	..	40
Total America	3,617,352	6,025,967						
Total British possessions	7,852,767	217,514,608						

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* Not including the Kuria Muria islands, Mosha, Kamaran, and Keeling islands, the total area of which is less than one hundred square miles.

† Not including the Chatham islands, Norfolk island, and the islands of Auckland, Lord Howe, Caroline, Starbuck, Malden, and Fanning. The natives of Australia, estimated at 55,000, and the Maoris of New Zealand, numbering 44,000, are not included.

‡ Not including Whale Bay, Tristan da Cunha, New Amsterdam, and St. Paul.

lish Government and people to the objects that they have at heart. A coolness arose between the Dominion and the mother-country on account of the protectionist policy for the development of Canadian manufactures. The Australians are now exasperated at the denial of their annexation schemes. The inhabitants of the British Antilles have a crying grievance in the refusal by the home Government of aid for their suffering sugar interest. The main ground, however, for the desire of federal co-operation, which has now become a demand, on the part of the colonies, is the fear that the European relations of England will involve her in wars in which they will be liable to attack and conquest. The first resolution presented in the conference for imperial confederation affirmed that "the political relations between Great Britain and her colonies must inevitably lead to ultimate federation or disintegration," and that "in order to avert the latter and to secure the permanent unity of the empire, some form of federation is indispensable." This resolution was dropped at the suggestion of Sir Charles Tupper, the Canadian High Commissioner in London, because it would strengthen the advocates of separation.

GREECE, a kingdom of southeastern Europe. (For details relating to area, territorial divisions, population, etc., see "Annual Cyclopædia" for 1882.)

Government.—The reigning monarch is George I, King of the Hellenes. The Cabinet is composed of the following ministers: President of the Council, Minister of Finance and War, Mr. C. Trikoupis; Justice and Foreign Affairs, since July 21, 1883, Mr. Contostavlos; Interior, Mr. C. Lombardos; Public Worship, Mr. Voulpiotis, since July 24, 1883; Navy, Vice-Admiral Tombazis, since July 21, 1883.

The President of the Chamber of Deputies is Mr. P. Kalligas.

The Greek Consul-General at New York is D. N. Botassi. The American Consul at the Piræus is C. Martelaus, and at Patras E. Hancock.

Army.—The army consists of 30,550 men of all arms, with 72 field-pieces, commanded by 1,552 officers, with 5,073 subaltern officers and musicians, and employing 3,548 horses and mules.

Navy.—The navy numbers twenty-three vessels, including two iron-clad steamers, two steam corvettes; eight gunboats, two of which are iron-clad, and six torpedo-boats furnished with seventy torpedoes; the aggregate tonnage of the fleet being 8,668, of together 6,820 horse-power, mounting seventy-five guns, and manned by 1,608 marines. There are besides three brigs, several coast craft, and fifteen royal sloops. Total number of men enlisted in the navy, 2,637. There are in course of construction four steam frigates and three steam brigs. Both army and navy are to be transformed after the French model, and the French vice-admiral Lejeune is to reorganize the navy.

National Indebtedness.—The public debt stood, on Jan. 1, 1884, as follows:

FOREIGN DEBT.

Loans of 1824 and 1825, consolidated as per agreement of Sept. 4, 1878, and amounting to drachms or francs	30,000,000
Loan of 1882, guaranteed by Great Britain, France, and Russia	20,000,000
Total	50,000,000

HOME DEBT.

Indemnity to the islands of Hydra, Spezia, etc.	16,400,000
Indemnity to the heirs of King Otho	8,700,000
Six-per-cent. loan of 1862, originally 6,000,000 drachms	3,278,160
Nine-per-cent. loan of 1867 and 1868, originally 28,000,000 drachms	16,324,500
Eight-per-cent. loan of 1871, originally of 4,000,000 drachms	3,116,250
Six-per-cent. loan of 1874, originally 26,000,000	23,367,500
Six-per-cent. loan of 1876, originally 10,000,000	7,092,750
Six-per-cent. loan of 1879, originally 60,000,000	58,015,000
Five per-cent. loan of 1881, originally 120,000,000.	116,615,000
Loan to cancel floating indebtedness to banks	170,000,000
Total	417,909,160

In January, 1885, it was announced at Paris that the Greek Government would soon appear in the European money market with a railroad loan for 120,000,000 francs, which amount represents the railroad bonds that the Government has undertaken to guarantee.

The principal object of the 170,000,000 drachm loan being the resumption of specie payments, this measure had been gradually prepared in 1884. The syndicate of bankers who had assumed the floating of the loan had, early in August, made a payment in advance of 14,000,000 francs in gold to the National Bank, from Paris, and to other Greek banks in bills on Paris of 4,000,000 francs. In October, a further amount of 72,000,000 francs was paid to the Ionian Bank and National Bank; as, however, part of this money was first to be coined into Greek gold coin in Paris, the resumption of specie payments, at first fixed for October 15, had to be postponed to Jan. 1, 1885.

Finance.—The Greek budgets for the fiscal years 1883 and 1884 ware as follow, reduced to pounds sterling:

REVENUE.	1884.	1883.
Direct taxes	£678,000	£568,200
Duties	940,000	948,000
Stamp-duty	280,000	257,000
Playing-cards	14,800	4,800
Liquor and beer tax	85,600	85,600
Tax on wines	128,000	128,000
Tobacco-tax	400,000	172,000
Tax on cigarette-paper	120,000	60,000
Tax on theatre and steamer tickets	8,000	6,000
Tax on petroleum	28,000	.....
Tax on matches	12,000	.....
Post-Office	40,000	48,000
Telegraphs	48,800	46,800
Other taxes and revenue from Government properties	165,600	189,000
Sales of Government properties	177,400	161,600
Sundries	323,800	256,500
Total	£3,445,000	£2,885,800

EXPENDITURE.	1884.	1883.
State debt	£1,108,900	£1,018,200
Civil list	40,500	40,500
Foreign Affairs	102,800	87,800
Justice	160,600	144,200
Interior	265,800	262,100
Public Worship	159,000	189,100
Army	808,600	662,400
Navy	171,100	154,000
Finance	121,100	71,600
Sundry expenditures	494,900	800,500
Total	£3,432,400	£2,880,400

Latin Monetary Union.—The Greek Government gave notice to those of France, Italy, Belgium, and Switzerland that with the close of 1885, when the Latin Monetary Convention will expire, Greece will cease to be a member of it, but that as a matter of courtesy its representatives will attend the meetings which till then may be held by the remaining parties to the Union.

The New Conventional Tariff.—The new conventional Greek tariff exempts from duty the following articles if of Italian, Spanish, or German origin: machine-belting; wooden pumps and all articles for ships' use; slate and slate-pen-oils; rails, spikes, etc., for railways; sewing-machines; diving apparatus; type; pipe for water, etc.; nails, screws, and parts of machinery; violins and other similar instruments, as well as all musical instruments made from either wood or metal; all scientific instruments; clocks and parts thereof intended for public buildings; paper-pulp; emery-paper; asphaltum, pasteboard, and paper; looking-glasses, spy-glasses, India-rubber hose and sheets, and vessels of all kinds. There was a further notable special concession made to Germany, that of admitting duty free German spirit intended to be mixed with wine.

The Græco-German Commercial Treaty.—This instrument was signed at Athens on July 9th, and ratified by the Greek Chamber at the third reading on Dec. 30, 1884. While on the part of Greece the duties are lowered and the above-named articles admitted duty free, Germany has reduced the duty on currants from twenty-four marks to eight marks the 100 kilogrammes, as was done with raisins under the provisions of the Hispano-German commercial treaty of 1883. In 1882 Germany imported 62,157 metrical cwts. of 100 kilogrammes currants; in 1883, 73,258. The concession made by Germany was therefore quite important.

Viticulture.—The amount of currants and grapes annually exported from Greece aggregates in value between 50,000,000 and 70,000,000 francs. The currant-crop begins in August, and nearly the entire amount produced is exported before the year comes to a close. The shipments on Dec. 31, 1884, had reached 77,133 tons from the Morea; 8,062 from Cephalonia, and 11,810 from Zante—together 97,005 tons, against 84,212 tons in 1883, and 82,074 in 1882. Wine-making is also gaining in importance rapidly, and the Greek wines are highly esteemed, both at home and abroad.

Lead-Mines.—The Laurium mines, originally worked by the ancient Greeks, since 1873 have been the property of a French company that works them successfully, producing during the first half of 1884, 3,926 tons of lead, of 2,240 pounds, worth 1,877,558 francs, and leaving a net profit of 325,823 francs. Since 1873 the company has distributed 92·55 francs per share in dividends. The lead is argentiferous, and the bullion is shipped to France and England to be desilverized.

Isthmus of Corinth Canal.—In this work, of the 8,000,000 cubic metres of earth to be removed, 1,300,000 had been dug at the close of 1884, by means of enormous dredging-machines operating at both ends of the canal. On the side of Corinth there was only a kilometer and a half offering technical difficulties, but at Kalamaki the obstacles are greater; yet, as locomotives and cars will assist in taking away the earth, it is estimated that the canal will be dug in three years. It will measure six kilometres in a straight line. Even now, there is a great movement of passengers at that point over a branch line of the Athens-Patras Railroad. More than 300 steamers now touch annually at the two sides of the isthmus. The Austrian Lloyd Steamship Company alone declares that it will pass, of its own vessels, 1,000,000 tons per annum through the canal, as soon as the transit shall be in operation.

Railroads.—There are now in operation, the line from Athens to the Piræus, 8 kilometres; the one from Volo to Larissa, 61½ kilometres; from Pyrgo to Katakolo, 12 kilometres; from the Piræus to Eleusis, 36 kilometres; and from Kalamaki to Corinth, 9 kilometres: together, 126½ kilometres. Rapid progress was made in 1884 on the line from Athens to the Laurium lead-mines, and in October it was reported that a syndicate of German bankers had been formed for the purpose of constructing a railroad from Larissa to the Græco-Turkish frontier, and thence to Salonica, where it will join the Turkish system of railways. The Government is ready to guarantee the interest on the bonds to be issued to build this line.

Telegraphs.—The number of offices in operation in 1883 was 127; length of lines, 5,952 kilometres; of wire, 6,223. Number of messages sent, 617,525. Receipts, 896,031 francs; expenses, 958,030 francs. Early in July, 1884, the islands of the Ægean Archipelago were united by a submarine cable with the Greek land-lines. The British "Eastern Telegraphy Company" obtained the privilege of working this cable, and, after securing the concession, immediately laid the cable.

Postal Service.—The number of post-offices in 1883 was 213, forwarding 5,081,739 letters and postal-cards, 3,185,388 newspapers, and 84,356 pamphlets and samples: together, 8,351,483 items of mail matter. Receipts in the same year, 903,563 francs; expenses, 565,861 francs.

Commerce.—The foreign trade movement in Greece, during the period from 1879 to 1883, was as follows:

	Imports.	Exports.
	Francs.	Francs.
1879	101,788,000	44,301,000
1880	114,124,000	41,684,000
1881	109,688,000	67,710,000
1882	156,184,000	89,442,000
1883	136,337,000	92,857,000

The total commercial movement in 1883 was distributed as follows:

	Imports.	Exports.
From and to—	Francs.	Francs.
United Kingom	36,678,000	36,184,000
Turkey	17,524,000	6,051,000
Austria	34,417,000	9,495,000
Russia	16,875,000	2,245,000
France	17,741,000	24,018,000
Italy	6,041,000	8,487,000
Germany	21,000	1,388,000
Other countries	7,045,000	9,989,000
Total	136,337,000	92,857,000

The chief articles imported and exported in 1883 were:

IMPORTS.	Francs.
Dry-goods	31,000,000
Breadstuffs	26,000,000
Lumber	7,260,000
Hides and skins	6,700,000
Sugar	6,250,000
Iron and hardware	5,400,000
Provisions	5,000,000
Liquor and beer	3,100,000
Cattle	3,000,000
Rice	2,700,000
Coffee	2,200,000
Sulphur	1,830,000
Total	100,440,000

EXPORTS.	Francs.
Currants	48,222,000
Olive-oil	7,890,000
Lead	5,742,000
Hides	3,087,000
Wine	3,049,000
Figs	2,671,000
Gall-nuts	1,509,000
Tobacco	1,328,000
Silk	781,000
Soap	551,000
Twist	3,000
Total	74,778,000

The American trade with Greece is shown in these figures:

FISCAL YEAR.	Imports from Greece into the United States.	Domestic exports from the United States to Greece.
1883	$1,281,580	$91,017
1884	1,089,984	185,485

Of the amount imported in the fiscal year 1884, $1,019,724 represented currants.

Merchant Marine.—According to the register of the "Bureau Veritas" for 1883–'84 the commercial navy under the Greek flag consisted of 47 sea-going steamers, with an aggregate tonnage of 25,555, and 1,865 sailing-vessels, measuring together 362,891 tons. If smaller steamers and sailing-craft be added, there are, altogether, 60 steamers, measuring, in all, 30,782 tons, besides 1,359 small coasting sloops, etc., to be added to the sea-going sailing-vessels.

There entered Greek ports in 1883, 6,872 sea-going vessels, of a joint tonnage of 2,061,682, and there departed 4,874 vessels, measuring together 1,991,865 tons. The maritime movement is most active at the Piræus, the port of Athens, where all the steamers bound for the Levant call; next in importance is Syra, where, in 1883, 50,000,000 francs of merchandise were landed. From the Island of Corfu alone 30,000,000 francs worth of currants leave every year; and Zante, besides currants, exports silk and cotton.

GREELY EXPEDITION. See ARCTIC EXPLORATION.

GUATEMALA, the most populous of the five Central American republics; population in 1884, 1,276,961. The President is Gen. Rufino Barrios, elected May 9, 1873, since which time the Constitutional Assembly has, by decree dated Oct. 23, 1876, prolonged his term of office for four years. Before the expiration of this term, March 15, 1880, he was re-elected for another term of six years. The Cabinet is composed of the following ministers: Foreign Affairs, Dr. F. Cruz; Interior, C. Diaz Mérida; War, Gen. J. M. Barrundia; Public Instruction, Licenciado R. Murga; Agriculture and Public Credit, Señor D. Sanchez; Public Works, Licenciado F. Lainfiesta.

The Minister to the United States is Señor L. A. Bátres; the Consul-General at New York, Señor J. Baiz; and the Consul at San Francisco, Señor J. M. Tinoco.

The United States Minister to the Central American republics (resident in Guatemala) is Hon. H. C. Hall; the United States Consul at Guatemala City, Dr. F. H. Titus.

Public Debt.—In 1884 the Government of Guatemala made an arrangement with its European bondholders, by the terms of which payment of interest is resumed on the 5 and 6 per cent. bonds of 1856 and 1869. By the provisions of this agreement, two new issues are to be made in exchange for the outstanding ones and coupons. One issue (£800,000) is to cancel the capital of the old bonds, and another (£250,000) the over-due coupons, pound for pound. The capital bonds are to bear interest at the rate of 3 per cent. per annum, payable half-yearly; and of these bonds, £8,000 are to be paid off annually at par, to be drawn for. The coupon bonds bear 6 per cent. interest, but will accumulate with interest, and are only to be canceled *pro rata*, together with the drawn capital bonds. In order to secure the prompt payment of new coupons in the future, the Government of the republic pledges 27 per cent. of its revenue to be derived from customs, to be handed over to the creditors in the shape of drafts on the custom-house. The average amount of duties collected annually is the equivalent of £60,000.

On Jan. 1, 1884, the foreign debt above alluded to was inscribed on the books of the state, principal and interest, with the amount of $3,945,461, while the internal or floating indebtedness stood $4,257,631. The aggregate national indebtedness was $8,203,092.

Finances.—The amounts and the various branches of the national revenue and expenditures for the fiscal year 1883 were as shown in the table below:

REVENUE.	
Balance from former years	$104,337
Direct taxes	176,906
Indirect income	1,916,967
Monopolies	1,549 178
Special state revenues	323,219
Income from sundry and extraordinary sources	88,577
Loans and deposits	2,569,418
Total	$6,728,607

EXPENDITURE.	
Administrative outlays	$2,330,643
Higher educational branches	97.166
Mails and telegraphs	115,819
Police at the capital	150,883
Justice	3,854
Pensions and state aid	41,958
Charitable institutions	112,064
Municipalities	18,101
Purchase of tobacco	10,967
Purchase of saltpeter	2,640
Sundry and extraordinary outlays	314,654
Floating debt	3,586,096
Total	$6,618,697

President's Message.—In his speech at the opening of Congress, President Barrios said:

> It is to be regretted that the new effort to establish a union between the five Central American republics has failed; but my Government, nevertheless, continues as willing as ever to use every effort within its power, by the institutions it develops, by its laws, and by its course of conduct, to furnish unequivocal proofs

of the fraternal spirit that has always animated it, and a practical evidence of its desire that all distinctions among Central Americans should disappear, all being placed on an equal footing with Guatemalans with respect to their rights and privileges. The shameful lines of demarkation which now exist must gradually disappear.

Events of 1884.—An attempt on the life of President Barrios was made at the capital, Guatemala, on Sunday, April 13. About eight o'clock in the evening, a bomb was exploded at the feet of the President and his companion, Gen. Barrundia, on their return from the theatre, while they were entering the park. Both were slightly wounded. Two men were arrested on suspicion: Santos Soto, fifty-two years of age, a man with a very bad record, accused of exploding the projectile; and a man named José Escobar, for abetting the deed. The proceedings against the assassins revealed an extensive plot, involving as chief actors these men and Jesus Soto, who were condemned to death, and as abettors and accomplices, Sebastian Macal and Abraham Soto, condemned to the penitentiary for life. Subsequently Guillermo Rodriguez was also found guilty of participating in the conspiracy, and was condemned to death. Two men of note, José María Samayoa and Julio Garcia Granados, were degraded from their public functions.

The meeting of the Presidents of Honduras, Salvador, and Guatemala, at the Guatemalan capital in September, terminated amicably; yet all appeared convinced that the results obtained have not promoted the formation of a Central American federation. The interests of the small states clash with those of the greater one (Guatemala), and they are seemingly afraid of the one-man power that Barrios exercises. On September 15 the three Presidents inaugurated the Southern Railroad of Guatemala. In September, Guatemala was invaded by a small party, chiefly political refugees, who crossed the Mexican frontier, and advanced a short distance, but the attempt was frustrated.

Railroads.—The lines from Champerico to Retalhulen, and from San José to Guatemala, are in operation. Work continues on the Interoceanic Railway. Since May the American contractors have been pushing with vigor the construction of the Northern Railroad from the Atlantic side and from the capital.

Telegraphs.—There were in operation in 1883, altogether, 77 offices and 4,635 kilometres of lines; the number of telegrams forwarded was 223,994, of which 159,000 were private messages and 64,994 Government dispatches. The gross amount collected was $95,023.

Postal Service.—The number of post-offices in 1883 was 144; mail matter dispatched, 2,111,366 pieces, against 693,847 the previous year. Income, $35,019; outlay, $34,834.

New Ports of Entry.—The boundary-line between Guatemala and Mexico, having been definitively traced and fixed in 1884, Guatemala has been able to carry out its long-matured plan of making the port of Ocós, in the bay of the same name, a port of entry. Another new port of entry has been created at the Atlantic terminus of the Northern Railroad, and named Puerto Barrios.

Land-Grants to Settlers.—The Government has issued a decree granting to every laborer introduced by the contractors of the Northern Railroad Company, under contract to work on their line, whether from the United States or from Europe, eleven and a quarter hectares of land, provided he is not under twenty-one years of age, nor over fifty, on condition of his having worked on the railroad one year, and that he intends to become a *bona fide* settler, with option to select the land from among unoccupied Government arable tracts, in the departments of Peten, Alta, or Baja, Verapaz, Zacapa, or Izabal, with immunity from all taxation whatever during the first five years. The land is to be delivered to him free of all expense. In order to prevent drunkenness among them, a tax of $150 each is imposed on all stores in which liquor is sold.

Crimes.—The number of crimes committed in the republic in 1883 was 3,142, of which 2,095 were by whites and individuals of the mixed race, and 1,047 by pure Indians.

Protestantism.—A new educational establishment will soon be opened in Guatemala, under the auspices of the Presbyterian Board of Missions of New York and the immediate direction of Mr. Hill. The course of instruction will be wholly in English, and in accordance with the system in vogue in the best schools in the United States. No sectarian influences will be brought to bear to bend the religious sentiments of the pupils in opposition to their home teaching.

Resources.—The census taken in June, 1884, shows that there are on stock-farms, etc., and grazing grounds in the republic, 107,187 horses, 41,366 mules, 441,307 head of cattle, 417,577 sheep, 27,618 goats, and 117,118 hogs, together 1,218,193 live animals, against 1,159,222 in 1883, being in the aggregate worth $15,102,233.

A Los Angeles (Cal.) gentleman has brought from Guatemala a plant called the "melon-shrub," which grows to the height of about three feet. It is an evergreen, with a beautiful purple and white flower, and bears a fruit shaped like a rifled-cannon shell, about four inches long by from two to three inches in diameter, a melon of most excellent taste, with the outside streaked with yellow and brown, and the color of a cantaloupe inside. The shrub bears in four months from the seed.

Commerce.—On June 27, 1883, the export duty on Guatemalan products of twenty cents per quintal gross weight, and one cent the superficial foot of dye and cabinet woods, was abolished, and since then exportation has increased so much that the year 1883, though liberated from the duty only during the latter half of it, shows an export of $5,718,341, against $3,719,210 in 1882. The imports, on the other hand, slightly decreased, the low price of colonial produce, etc., abroad, crippling somewhat the purchasing capability of the people at large, anticipating which merchants established in Guatemala ordered a smaller amount of goods from abroad.

The leading export articles in 1883 were: Coffee, $4,848,833 worth; skins, $160,781; brown soft sugar and panetela, $223,186; the latter is a dark loaf-sugar; indigo, $16,881; horse-hair, $31,731; India-rubber, $224,519; and specie, $145,516.

Another change in tariff marked the year 1884, reducing the import duty by one half on the following articles: Aromatic waters, including Florida and lavender; almonds, in shell and shelled; cloves, cinnamon of all classes, caraways, tinned edibles, chinaware of all kinds, stearine, as candles and in bulk; raisins, figs, and other dried fruits; storax gum, soap of all classes, fideos, macaroni, maizena, and other similar products of flour and corn; pepper, whole and ground; sago and tapioca.

Maritime Movement.—The number of sea-going vessels that entered Guatemala's ports in 1883 was 220.

Banking.—The Bank of Guatemala cleared a profit of about 20 per cent. during the last six months of 1883.

ARNOLD HENRY GUYOT.

GUYOT, ARNOLD HENRY, an American geographer, born in Neufchâtel, Switzerland, September 28, 1807; died in Princeton, N. J., Feb. 8, 1884. His early education was obtained at the college in his native place, whence he went to the gymnasiums in Stuttgart and Carlsruhe. At this latter city he formed an intimate acquaintance with Prof. Louis Agassiz, which resulted in a life-long friendship, and an ardent love for natural science. Guyot pursued the study of theology for three years in Neufchâtel and Berlin, but afterward devoted himself exclusively to scientific investigation. He resided five years in Paris, and made summer excursions, in the interests of his favorite pursuits, through Belgium, France, Switzerland, Italy, and Holland. He was the first to observe the laminated structure of ice in the glaciers, a discovery that was confirmed by Agassiz, Forbes, and others. He next investigated the curious distribution of erratic bowlders. The publication of Guyot's work on this topic, with full details, was prevented by political disturbances, and also by his departure from Switzerland. From 1839 to 1848 he did excellent service to the cause of science, as Professor of History and Physical Geography in the Neufchâtel Academy. In 1848 he came to the United States, and took up his residence in Cambridge, Mass. While here, he delivered scientific lectures on the relation between physical geography and history. These lectures, which were in French, and were subsequently translated, were published in a volume entitled "Earth and Man." One noteworthy feature of Guyot's lectures was his clear and settled conviction as to the truth and authority of the Scriptures. He also lectured in the Massachusetts Normal Schools, and was employed by the Smithsonian Institution to organize and arrange a system of meteorological observations. Among the valuable results of his work at this time was the determination of the exact height of Mount Washington (1851), and of some of the Green Mountains (1857). In 1855 Guyot was appointed Professor of Geology and Physical Geography in the College of New Jersey, at Princeton, in which chair he remained, and was senior professor at the time of his death. He was founder of the museum at Princeton, which is one of the best of its kind in the United States, and many of its specimens were collected and arranged by his own hands. Between 1866 and 1873, Prof. Guyot prepared a series of geographies that have been very largely used in the public schools. At the Vienna International Exhibition he received a medal for his geographical works; and at the Evangelical Alliance Conference, held in New York in October, 1873, he read a valuable paper on "Cosmogony and the Bible; or, the Biblical Account of Creation in the Light of Modern Science." This paper was published with others read at the Conference, and constitutes not the least important in that collection. Prof. Guyot occupied a part of his leisure in preparing for the Academy of Sciences a memoir of his friend and associate, Louis Agassiz, who died in 1878. A part of this memoir was read, in October, 1877, at the semiannual meeting of the Academy in New York. He also co-operated with President Barnard, of Columbia College, in editing Johnson's Cyclopædia. His last work was on "Creation," and was finished just before his death. In this he presents, with great force, the arguments that go to show the harmony of the Mosaic records with the acknowledged facts of modern science. Prof. Guyot received the degree of Doctor of Laws from Union College, and was one of the original members of the National Academy of Sciences when it was created by Congress. He was also elected a corresponding member of numerous foreign academies and learned societies. He was noted for his gentle manners, his sincere piety, his kindness to students, and his marvelous success in giving life and interest to the studies that were pursued in his department. Prof. Guyot married ex-Governor Haines's daughter, who survives him.

H

HAIR-CLOTH. A fabric for upholstering furniture. It is desirable because of its cleanliness and durability. The warp is of cotton or linen, usually dyed black. American manufacturers prefer cotton because of its flexibility. English and Germans prefer linen. The filling is of hair from the tails of horses. The hair is obtained from Russia and South America. The most desirable hair, because longest and finest, is from Russia.

Manufacture.—The hanks and masses of hair are partially hackled and washed, and then dyed black, excepting small portions of the white and gray, which are selected and woven in the natural color. After being dyed, the hair is drawn. The mass, after being thoroughly hackled, is placed on a set of steel points, a similar set being inverted upon them, forming a kind of rack and clamp. From these sets of points the workmen draw out the hair in small wisps, seizing them between the thumb and the blade of a dull knife. By the first drawing the hairs are straightened, and all brought evenly together at one end. They are then placed on the racks a second time, now with the uneven ends toward the workmen, and by the second drawing are assorted according to their length and arranged in bundles of about half an inch diameter, with one end secured by a rubber band. A machine has been invented for drawing hair, but it has not been used to any great extent. The drawing, besides straightening and assorting the hair, gives it a glossy luster, which adds much to the elegance of the cloth. The hair is assorted into twenty-six different lengths, varying from sixteen to forty inches. Hair long enough to weave cloth thirty-six inches wide is very scarce; a factory producing over half a million yards annually will not weave more than about one hundred yards of that width. Hair-seating is commercially rated, as to width, by measurement within the selvedge; the hair used being in length four inches more than the rated width of the cloth produced. This surplus has to provide not only for the selvedge, but also for the fact that the switch end of the hair is so fine, and often so weak, that it can not be fully relied upon for utility. Hair from six to sixteen inches in length is sold to brush-makers, and the very short is curled for mattresses.

The modern hair-cloth loom resembles an ordinary cotton or woolen cloth loom in its general appearance. But instead of a shuttle carrying the woof, a rod is shot between the threads of the warp, provided at the end with a pair of nippers, which, working automatically, seize the hairs that are individually presented to it by the selecting instrument. This instrument is a very ingenious device. It consists of a tiny pair of forceps capable of holding but a single hair. Two wires, with a microscopic groove in the end of one of them, shut together somewhat like the bill of a bird, one hooking slightly over the other, and giving the points a sliding motion as they close, thus effectually separating the hairs so that only one is retained. This instrument is adjusted somewhat after the manner of the needle-bar of a sewing-machine, over a bundle of hair, so as to drop into it, opening as it descends and closing as it rises. By a delicate adjustment, it is so arranged, that if it fails to get a hair by the first movement, it can make three efforts before the return of the nippers. If it gets one by the first effort, as it almost invariably does when the hair is properly prepared for the loom, it makes no other descent until the hair is taken away by the nipper. If from any cause no hair is presented, the harnesses remain stationary, so that no damage is done to the cloth, although the loom continues in motion without any hair being fed. As soon as a hair is fed in, the harnesses resume their motion. The reed of the loom is slightly curved, to allow for the contraction of the hair, which is woven in with a slight tension, and, being very elastic, stretches somewhat under it, and contracts when free. The daily product of one loom is from five to eight yards, the difference being due to the differing quantity of hair used in light or heavy cloth. A skillful operative can attend ten looms. A loom has been invented which feeds hair from both sides, thus nominally doubling the producing capacity, but it has not yet been brought into commercial use.

The cloth when taken from the loom is carefully trimmed by a machine furnished with knives having serrated edges, which, passing rapidly over the cloth, clip off every projecting fiber. Another machine trims the edges. For the finishing process, the cloth is folded between sheets of paper board, or sheet-iron, to prepare it for the press. Two forms of press are used, viz., first, a common hydraulic press with heated cast-iron plates inserted among the folds of cloth; and, second, the more modern press, known to manufacturers as the steam-press. As two pressings are usually desired, both forms of press are used on each piece. After pressing, it is wrapped in manila paper and packed for shipping.

History.—The hair-cloth industry in this country by power-looms dates from 1855, but the automatic feeding devices were not practically perfected till 1861. The first power-looms did not differ essentially from the others. The hairs were fed by an operative presenting them in his fingers to the hook which was then used instead of nippers, and which caught the hair in the bight and doubled it through, the operative firmly holding one end until the other was carried through. This industry by power-looms was begun in this country in Pawtucket by the Boston Hair-Cloth Company in 1855. The Pawtucket Hair-Cloth Company was organized a few years later, and, by the invention of the automatic device for picking up and presenting the hairs, obtained the practical leadership of the business, which it held until the expiration of its patent. The harness stop-motion was invented by Rufus Stafford; but the credit of bringing the automatic self-feeding power-loom to its present remarkable perfection is due to the genius and toil of Isaac Lindsley. The largest factory for this fabric in the United States is that of the Pawtucket Hair-Cloth Company, in Pawtucket, R. I. This is furnished with about 450 looms, and produces about 600,000 yards annually, which is about three fourths of all produced in the country. The business is affected by the changes in the fashion of upholstering.

Hair-Cloth Crinoline.—This is a light, springy, fabric, used for tailors' trimmings, and for ladies' skirts, bustles, etc. It differs from the seating in having finer warp, and in a looser texture. It is manufactured in substantially the same manner as the seating, is woven in various patterns, and receives a slight dressing of starch. The principal manufactory for this fabric is that of the American Hair-Cloth Padding Company in Pawtucket, which has 100 looms and produces about 1,200 yards daily. There are a few other looms for these goods in New York, Newark, N. J., and Philadelphia.

HAWAIIAN ISLANDS, or Sandwich Islands, the most northerly group of the Polynesian Archipelago. It consists of four large islands, four smaller ones, and a few rocky islets. They are situated in the North Pacific Ocean, latitude 18° 40′ to 22° north, and longitude 154° to 160° west. The nearest land is the coast of California. The following table shows the distance between the port of Honolulu and the other principal ports of the Pacific Ocean:

	Miles.
From Honolulu to San Francisco	2,100
From Honolulu to Sydney	4.100
From Honolulu to Auckland	4,100
From Honolulu to Yokohama	3,700
From Honolulu to Hong-Kong	4,800
From Honolulu to Valparaiso	5,500
From Honolulu to Callao	4,700
From Honolulu to Panama	4,200
From Honolulu to Tahiti	2,400
From Honolulu to Puget Sound	2,600

The islands lie on the straightest course from Panama to Yokohama and Hong-Kong, and within two hundred miles of the straightest course from San Francisco to Sydney. They are within the belt of the northwestern trade-winds, which blow strongly and incessantly during nine months of the year, and with intermissions during the remaining three months.

Since the year 1873 a governmental survey of the group, both astronomical and cadastral, has been in progress, under the direction of Prof. W. D. Alexander. Some of its data respecting the chief islands are given in the following table:

NAME OF ISLANDS.	Length.	Breadth.	Area.	Greatest elevation.
	Miles.	Miles.	Miles.	Feet.
Hawaii	92	72	3,950	13,805
Maui	54	25	630	10,032
Kauai	31	23	640	5,000
Oahu	36	21	600	4,060
Molokai	35	7	210	3,500*
Ranai	20	9	140	3,400*
Nihau	20	5	60	....
Kahoolawe	12	5	40	1,428

Government.—The islands constitute the kingdom of Hawaii, a constitutional monarchy. The natives retain the ruling power. The King, Kalakaua, was born Nov. 16, 1836, educated by the missionaries at the Royal School in Honolulu, and inaugurated Feb. 13, 1874. His Queen, Kapiolani, was born Dec. 31, 1834. The dowager Queen Emma, widow of Kamehameha IV (whose line is now extinct), is a member of the royal family. There is a House of Nobles, twenty-three in number, of whom, however, a majority are Americans and other foreigners; a House of Representatives, a Ministry of Foreign Affairs, of Finance, and of the Interior, a Privy Council, an Attorney-General, and a Supreme Court. The revenue and the expenditures of the Government are estimated by biennial periods: for 1881-1882 at $1,780,830 and $2,196,006 respectively. The customs revenue for 1884 was $551,737. The public debt in 1880 was $6.71 per capita. The salary of the King is $22,500 a year. In 1884 there were eighty-one incorporated companies, agricultural, commercial, and miscellaneous, in the islands. Two daily, eight weekly, and five monthly journals are published, in the English and Hawaiian languages.

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* Estimated.

The Hawaiian Constitution is modeled largely after that of the United States. It guarantees liberty of the press, of worship, free instruction, trial by jury, and *habeas corpus*. The entire native population, above the age of childhood, are acquainted with reading, writing, and other branches of elementary education. Of the whole school population, 57 per cent. are boys and 43 per cent. are girls.

Honolulu, the capital, is a place of about 18,000 inhabitants; it is much resorted to for the attractions of its climate, and for the beautiful surrounding scenery. Its harbor is excellent. Hilo, on the island of Hawaii, has also a fine bay; it is the second place in size and importance in the group, a growing town of 5,000 or 6,000 people, and the center of a considerable agricultural interest. For remarkable tropical beauty, Hilo is unsurpassed in these islands, or perhaps in the world.

Volcanoes.—The islands are entirely of volcanic origin; but coral reefs are frequent, and form some of the best harbors. The greatest continually active volcano in the world, Kilauea, lies upon the southeastern flank of Hawaii, 4,040 feet above sea-level; it is a pit or sunken lava-plain, about three miles long, two broad, and a thousand feet deep. In the northwestern part of this immense crater a lake of liquid lava is constantly burning. It varies in its dimensions and in the fury of its activity, at times approaching quiescence, and again overflowing or melting away its barriers of congealed lava, and spreading over the floor of the great crater, a sea of raging fire, or forcing its way for miles underground, to burst forth in a destructive torrent on the mountain-side, and flow downward to the sea. The summit crater, Mokuaweoweo, is situated on the top of Mauna Loa (13,600 feet). Prof. James D. Dana computes the mass of the mountain to be 1,300 times greater than that of Vesuvius. From this mountain eruptions of the greatest splendor burst forth every few years. The outbreak of the torrents of lava is generally preceded by earthquakes; these, however, have been destructive only in the case of two recorded eruptions, one in the eighteenth century, and another in the year 1868; and they cease when the fusion has forced its way to the surface, either at the summit crater, or at some point high up on Mauna Loa. There the fountain of fire plays, sometimes for weeks, in the air, illuminating the whole horizon to a distance of one hundred and fifty miles in every direction, and so intensely that the writer of this has read fine print at a distance of forty miles by the light of the white-hot column. This lava, completely fused, is extremely fluid. It is thrown to a height of many hundred feet, from clefts in the lava-rock that are sometimes hundreds of feet in length, and, falling upon the slope, it flows with immense rapidity down the flanks of the mountain, either forthright seaward, or spreading out over the upland wilderness between the bases of Mauna Loa and Mauna Kea, destroying the forests, filling up the valleys, obliterating streams, and forming vast lakes or reservoirs of melted lava. The Rev. Titus Coan gives, in his "Life in Hawaii," a description of the mechanism of the lava flows:

"The average slope of Mauna Loa is seven degrees; but this is made up of secondary slopes, varying from one to twenty degrees. As the lava first rushes down the steeper inclinations, it flows uncovered; but its surface soon hardens, forming a firm, thick crust like ice on a river. Under this crust the torrent runs highly fluid, and retaining nearly all its heat. In this pyroduct, if I may so call it, the lava-stream may pour down the mountain-side for a year or more, flowing unseen, except where openings in the roof of its covered way reveal it. When the molten river reaches the highlands at the base of the mountain, it sometimes spreads into lakes miles in diameter. The surface of it soon hardens; the lavas below are sealed within a rigid crust that confines them on every side. Their onward progress is thus checked for hours or days. But as the tremendous pressure of the stream behind increases, the crust is rent, and the liquid lava bursts out and gushes forward or laterally for a hundred, five hundred, or a thousand feet or more. The surface of this extended mass cools and stiffens in time, again confining the living lava; then with the pressure from behind there is a fresh rupture in the confining shell. While the lava is held in check as I have described, the uninitiated visitor will pronounce the flow to have ceased. But it is only accumulating its forces. Suddenly the hardened crust is ruptured with a crash, the lava moves forward again, and a new joint is added to the covered way. Thus the fusion may flow at white heat for thirty or forty miles, and reach the sea at a distance of more than fifty miles from the mountain-source." By virtue of this confining crust, the red-hot lava, growing viscid as it loses heat, may even be propelled up-hill for a certain distance, if the outbursting rush of lava be directed upon an upward slope.

The eruption of 1855–1856 continued for fifteen months, the lava making steady progress seaward all this time, though after the first few days the progress was extremely slow. Within the present century, the lava-flows of 1801, 1823, 1840, 1859, and 1868, reached the sea at different points on the coast; the northeastern part of the island being the only one that is not subject to volcanic outbreaks. These, however, have only twice, within historic times, been destructive to life; and the greatest eruptions can generally be visited with safety, even during the time of their highest activity.

Climate.—The climate is sub-tropical. The usual temperature at sea-level is from 70° to 80° Fahr., with extremes of 57° and 90°. Depressing heat is unknown, and white labor ers easily work all day long, a circumstance unknown in any other country within the tropics. This uniformity at an agreeable temperature is the unique feature of the Hawaiian climate. Other tropical islands, as Tahiti and Jamaica, the Philippines and the Sundas, enjoy equal uniformity, but a uniformity of excessive heat, the mercury for half the year never coming as low as 70°. In Hawaii the pandanus and the banana flourish, while yet it is cool enough for one species of the peach, and on the uplands the strawberry and the raspberry are indigenous. The immediate cause of this equability at comfortable temperatures is the singular coolness and dryness of the ocean temperature, which is never far from 70° Fahr., or cooler than in any other region in the same latitude. Mr. Sereno E. Bishop, of Honolulu, employing the "Challenger" temperature soundings, shows that this coolness, and the consequent dryness of the climate, is due to an ocean-current from the north. This first makes its way as a deep-sea current all the way from the south-polar seas to the Arctic region, and is then reflected southward to the Hawaiian Islands, as a cool surface-current, from the closed Arctic extremity of the Pacific Ocean.

The air-currents are, in consequence of the equable coolness of the water and small evaporation, comparatively dry. They yield their entire moisture to the windward coasts of the islands, where the annual rainfall varies from 150 to 240 inches. The leeward sides are dry, as a rule, and often arid. But when the mountain-barriers are high enough to cut off the trade-wind completely, the leeward coasts receive alternating land-breezes by night and sea-breezes by day, and are moist. The temperatures vary with the elevation above the sea, giving the resident the choice of climates from the tropical to the temperate zone; though most of the population is found near the level of the sea. These varied conditions of dryness, moisture, winds, and mountain elevation, produce so many climatic contrasts that, while the climate of each particular region is equable to an unexampled degree, there are probably more kinds of climate in the little Hawaiian kingdom than anywhere else in the world on an equally limited area. The group is destined for this reason, among others, to become an important sanitarium for Americans.

Productions.—The principal islands are only mountains that lift themselves to great heights from the sea; and but a small part of their area is adapted to agriculture. Their lofty interiors are unavailable for anything except in places for pasturage, the older formations being scored into immense ravines divided by knife-edged ridges. The newer volcanic tracts are seldom arable, though the lavas decompose with great rapidity into fertile soil. There is, however, as usually in tropical countries, a great deficiency of good pasture-grass, except in the interior of Hawaii, where thousands of wild cattle (introduced by Capt. Vancouver) and goats range the uplands; these are hunted for their hides. Wild hogs and wild turkeys are also abundant. Various kinds of grasses have been introduced, as yet with little success, in the effort to remedy this defect of intertropical regions; among them the Bermuda grass, the "false Guinea grass" (*panicum spectabile*), and the alfalfa, a tender forage-plant resembling clover, introduced from Chili, which has been planted in the same rows with sorghum.

The lands that are available for the cultivation of the staple crops—sugar, coffee, rice, fruits, etc.—are limited to a marginal ring of coast territory, of varying breadth, but never broad. On the leeward sides of the islands much of this land requires expensive irrigation: even where the rainfall exceeds 100 inches per annum, irrigation has been found necessary for security against droughts. The uplands, however, are moist as well as fertile, and here the best cane-growing land is found. But the total acreage available for the sugar-cane, though it is variously estimated, can not much exceed 90,000 acres. The percentage of arable land is the greatest on Kauai, the oldest island, and the least on Hawaii, the newest—Hawaii being, indeed, still an unfinished island, geologically speaking, while on the other islands volcanic action has been immemorially extinct. Puna, the southeastern district of Hawaii, has an area of nearly six hundred square miles, nearly all being partly decomposed lava; but there is not in the whole district a single tract of ten acres that has a soil deep enough to plow, though the climate is perfect for the cultivation of any staple crop. On the windward sides of the islands, again, the land is cut up by deep and precipitous gorges or cañons, which head far inland, and open seaward between steep precipices that wall the coast. The upland flats between these gorges are generally narrow, and do not afford room enough for a large plantation. "It is a matter of extreme inconvenience to a planter to have his farm cut up into three or four pieces by gorges 300 to 500 feet deep, which are very difficult to cross; and if the component parts are too small, his farm will not pay."

But in the limited tracts that are available for sugar, deep soil of great richness is found, and these produce abundantly. The average yield per acre between Oct. 1, 1882, and Oct. 1, 1883, for the whole group, was 2$\frac{71}{100}$ tons per acre; the total area cultivated, 21,804 acres; the total yield, 59,124 tons. At Waianae, on the leeward side of Kauai, where there are great advantages of soil and climate, a field of 32½ acres yielded, in 1884, 406,102 pounds of sugar, or 4¼ tons per acre. Other localities have yielded five tons an acre; and one planter took fifty tons of sugar from seven acres of ground, his plantation being 2,500 feet above sea-level; but this unexampled crop had been three years in maturing. In other sugar-growing countries two tons an acre is considered an ample yield. The Demerara cane-fields, with improved cultivation and powerful machinery, average a sugar production of but 1¼ ton to the acre. The sugar-crop can remain long in the ground without injury. It is not infrequent to plant only once in three years, taking off two ratoon-crops meanwhile.

The area actually cultivated in cane is at present 23,500 acres, distributed as follows:

	Acres.		Acres.
Hawaii	12,000	Kauai	4,000
Maui	6,000	Oahu	1,500

The value of the sugar-lands in the islands is estimated at $15,886,800, of which amount $10,235,464 belongs to Americans.

The process of manufacture employed is the old one of crushing the cane and evaporating the juice, of which not more than about 75 per cent. can be expressed by the most improved mills, nearly 25 per cent. being lost. The amount of sugar yielded by this process is about 8 per cent. of the weight of the cane. To save this very considerable waste, it is proposed to introduce the diffusion method, as now practiced on a vast scale in France and Germany in the manufacture of beet-sugar. The process consists essentially in carrying a stream of water, increasing in temperature as it flows, through a series of tanks filled with sliced cane. By the action of *osmosis*, this current takes up nearly all the sugar through the vegetable cell-walls, whether of the cane or the beet-root, leaving scarcely a chemical trace of sucrose behind. The cells not being broken as by the crushing process, few impurities are disengaged, and nearly all of these are coagulated by the heat employed, so that the diffusion-juice is much purer than mill-juice; its only disadvantage being its considerable dilution by the water employed in the process. The immense European production of beet-sugar by diffusion, within the past two years, bringing the price of sugar down to four or five cents a pound, threatens to drive the cane-mill and the cane-planter to the wall in spite of the great natural advantages he enjoys, unless more improved processes of manufacture are soon introduced.

Trade with the United States.—On the 9th of September, 1876, a commercial treaty of reciprocity between the United States and Hawaii went into effect, to remain binding for seven years from that date, and further until the expiration of twelve months after either of the high contracting powers shall give notice to the other of its wish to terminate it. This treaty, which is in the ninth year of its operation, remitted the taxes on the chief products of either country in the ports of the other. It has greatly stimulated the sugar-culture and the general trade between the two countries. San Francisco is the direct market for the Hawaiian products, which are mostly consumed on the Pacific coast. Many Americans have gone to the islands and have engaged in agriculture or mercantile pursuits, and have realized fair returns. American capital to the amount of $3,200,000 in ships and wharves, and $3,300,000 in loans, was invested, in 1882, in the islands; and in all, about $20,000,000 of American capital has found permanent employment in the group. Three fourths of the vessels that visit the islands are American, and 95 per cent. of the commerce between the United States and Hawaii is carried in American vessels.

The imports are of very varied character. They include agricultural implements and machinery (though much of the latter is imported from England), breadstuffs, cotton manufactures, hardware, clothing, and supplies of many kinds. The total value of the imports from the United States, under the treaty, for the year ending June 30, 1883, was $3,811,913; of exports to the United States, $8,029,835; making an excess of exports over imports of $4,217,022. This is practically the amount of admission free of duty from the islands, the balance being set off by merchandise sent free of duty to that country. This apparent balance against the United States represents, however, the profits of Americans engaged in agriculture, navigation, and trade and provincial dealings with the Hawaiian people. Interest and profits on the $20,000,000 investments already specified are $2,000,000. Freights, insurance, and handling of produce interchanged, amount to $1,184,174 on a low estimate; American commissions and profits, estimated at 5 per cent., are each $592,087.40; in all, a sum of $4,368,348, which more than cancels the apparent balance of trade against the United States. In point of fact, Americans are not called upon to ship coin or to transmit exchange to Hawaii to pay it, but, on the contrary, exchange is now (March, 1885) considerably against Honolulu.

In the year before the treaty (1875) the Hawaiian trade, including exports and imports, was $1,722,555. In the absence of the treaty this would not have been materially increased. In 1884 the trade with the United States had increased to $3,523,000 exports from the United States, and $7,926,000 imports from the islands; total, $11,449,000, or a nearly sevenfold increase, the treaty having caused nearly all of this increase. The United States are the creditor country, and handle nearly all of the commerce; and the taxes remitted by the United States are upon articles that are consumed by her people. The exported Hawaiian raw sugars are refined on the Pacific coast, and consumed there, at a cost but a trifle greater than that of their production. The treaty permits the exportation of "muscovado, brown, and other unrefined sugars" from the islands free of duty, and charges have been brought against the exporters of falsifying the grades. These charges have not been sustained, it having been shown that the centrifugal separator and the vacuum-pan were in general use among the planters before the treaty was drafted.

The crop of rice has also been much increased under the treaty, the exports rising from 3,034,405 pounds in 1877 to 9,493,000 pounds in 1884. Coffee, of excellent quality, unsurpassed in flavor, and less "wakeful" in its effect than the Eastern coffees, is produced in small quantity. The best comes from the district of Kona, on Hawaii; but it is subject to a destructive blight, which has checked its cultivation.

The following table shows the amount and value of the principal Hawaiian exports for 1882–'83, and indicates a slight falling off in the value of the latter year, due principally to a dry season and a consequently short crop of sugar, and to the considerable decline in prices.

PRINCIPAL DOMESTIC EXPORTS OF THE HAWAIIAN ISLANDS IN 1883-1884.

YEARS.	Sugar, pounds.	Molasses, gallons.	Paddy, pounds.	Rice, pounds.	Coffee, pounds.	Fungus, pounds.	Bananas, bunches.	Goat-skins, packages.	Hides, packages.	Tallow, pounds.	Wool, pounds.	Sheep-skins, packages.	Value.
1883.........	114,107,155	198,977	1,868,705	11,619,000	16,057	8,768	44,902	24,798	83,955	82,252	816.271	6.568	$7,924,727
1884.........	142,654,923	110,530	45,224	9,498,000	4,231	2,247	58,040	20,125	21,026	2,864	407.628	8.088	7,977,909

Population.—An official census of the Hawaiian Islands was taken Dec. 27, 1878, showing a total population of 57,985, distributed under the following nationalities:

Native Polynesians	44,088
Half-breeds of various crossings	3,420
Chinese	5,916
Americans	1,276
Hawaiian-born of foreign parents	947
British	883
Portuguese	436
Germans	272
French	81
Other foreigners	666
Total population, December, 1878	57,985

Since 1878 the foreign population has rapidly increased, mainly by the importation of Chinese and Portuguese laborers for the sugar-plantations. The distribution of present population is nearly as follows:

Native Polynesians	40.000
Half-breeds	4,000
Chinese	18,000
Americans	2,000
Hawaiian-born of foreign parents	2,000
British	1,300
Portuguese	9,000
Germans	1,600
French	200
Other foreigners	2,475
Total population, December, 1884	80,575

The Chinese male adults now considerably outnumber the Polynesian.

The aboriginal population continues to decrease, as it has done since the first estimate, made in 1779 by Cook. The successive estimates have been as follows:

POPULATION OF THE HAWAIIAN ISLANDS.

A. D.	Total population.
1779, estimated by Captain Cook	400,000
1823, estimated	142,050
1832, official census	130,315
1836, official census	108,579
1850, official census (native and half-breed, 82,203)	84,165
1853, official census (native and half-breed, 71,919)	73,138
1860, official census (native and half-breed, 67,084)	69,800
1866, official census (native and half-breed, 58,765)	62,959
1872, official census (native and half-breed, 51,897)	56,897
1878, official census (native and half-breed, 47,508)	57,985
1884, official census (native and half-breed, 44,232)	80,578

This rapid and persistent decrease of the aborigines is not mainly due to foreign diseases, though these have swept away multitudes; epidemics of small-pox, syphilis, measles, and even of influenza having been especially fatal. But the peculiar feature of the movement of population, not only in the Hawaiian but in all the other Polynesian groups, is that it is always steadily retrogressive, and does not tend to restore any part of its losses, as is the tendency in other populations after the greatest losses. The process of depopulation goes forward unchecked, even though the community be apparently healthy. Between the censuses of 1832 and 1884 the aboriginal and half-caste population has decreased 66 per cent.

The reason of this swift and continuous depopulation has been pointed out by Charles Darwin in his work on "The Descent of Man." It is the sterility of the people under changed conditions, and the high mortality among the children, probably a consequence of this lessened fertility. The advent of the trader and the missionary, and the sudden and complete change wrought by them in the dress, the usages, the religion, the amusements, and to a great extent in the food of the aborigines, these have broken up the completely adjusted environment of the Polynesian, and he has been unable to support the change. In his work on "The Descent of Man," Darwin says, "One of my informants, Mr. [T. Munson] Coan, who was born on the islands, remarks that the natives have undergone a greater change in their habits of life during fifty years than Englishmen during a thousand years." This revolution in their physical and psychical condition has made it comparable to that of wild animals under restraint, among which infertility is the rule. As early as 1843 the Hawaiian Government rewarded parents who had three children by exemption from taxes, while those who had more than three received gifts of land and other encouragements. Darwin's conclusion in respect to the extinction of the Polynesian races is this:

"The reproductive system can be shown to be susceptible to an extraordinary degree (though why we know not) to changed conditions of life. Seeing how general is this law of the susceptibility of the reproductive system to changed conditions of life, and that it holds good with our nearest allies, the Quadrumana, I can hardly doubt that it applies to man in his primitive state. Hence, if savages of any race are induced suddenly to change their habits of life, they become more or less sterile, and their young offspring suffer in health in the same manner and from the same cause as do the elephant and hunting-leopard in India, many monkeys in America, and a host of animals of all kinds, on removal from their natural conditions."

The extinction of the pure Hawaiians is apparently only a question of time, and the question what foreign occupancy shall follow the native rule is one that must possess interest for the United States, as the Hawaiian Islands are now the only remaining group in the North Pacific Ocean that is not a colonial dependence of some power in Europe or Asia.

HAYTI. (For details relating to area, territorial divisions, population, etc., see "Annual Cyclopædia" for 1883.)

Government.—The President of the Republic is Gen. Salomon, elected for seven years, dating from 1879. The Cabinet is composed of the following-named ministers: Foreign Affairs, Finance, and Commerce, Gen. Damier; Justice and Public Worship, O. Madion; War and Navy, Michel Pierre; Interior, Ovide Camen; Public Instruction and Agriculture, F. Manigat.

The United States Minister Resident and Consul-General at Port-au-Prince is the Hon. J. M. Langston, and the American Vice-Consul-General is Dr. J. B. Terres. The Haytian Minister to the United States is Mr. S. Preston; and the Haytian Consul-General at New York, E. D. Bassett.

The Rebellion.—On Dec. 21, 1883, President Salomon informed the foreign representatives and consuls that Jérémie had surrendered, and that one of the clauses of the capitulation was that several of the foreign diplomats or consuls should assist in the execution of the treaty of surrender. The President at the same time asked the representatives to assist him in the settlement of peace, and to accede to the fulfillment of the clauses stipulated. The foreign ministers and consuls agreed to send three men-of-war of different nationalities to Jérémie, carrying as many commissioners, one of each nationality, and appointed the United States Minister and the consuls of Spain and England as commissioners, who witnessed the entry of the Government troops into the city and forts, and next day returned to Port-au-Prince. Before Jérémie surrendered, the Government troops had taken by assault the villages of Corail and Pestel. Jacmel was driven to capitulation by want of provisions. The Revolutionary Committee of the town, knowing that President Salomon had excluded its members from the amnesty accorded to the rest of the insurgents, took refuge at the foreign vice-consulates, and left to their military chief the task of stipulating the terms of their surrender. Several days afterward Gen. Prophète took Côtes-de-Fer by assault.

Events of 1884.—In January it was announced that the Haytian ports of Saltrout, Anse d'Hainault, and Dame Marie, which had been temporarily opened to foreign commerce in place of Jérémie and Jacmel, would be closed again on February 15. At Miragoane the surrender occurred on January 24.

The Minister of Finance, with the appointed delegation, signed bank-notes to the amount of $1,000,000, which were issued in spite of the protest of the National Bank.

On February 18, in the United States District Court, in session at Philadelphia, a verdict, by agreement, for $500 was rendered in favor of the Government against Warner and Merritt, owners of the steamer Tropic. This represented a penalty for carrying as passengers insurgents taken aboard of the vessel at Inagua and landed at Miragoane, Hayti, when the certificate of the vessel forbade the carrying of passengers. It was represented that a similar action had been brought by seamen on board of the vessel, and the penalty in that case paid. The question was pending as to whether a double penalty could be exacted.

On February 20 President Salomon proclaimed at Port-au-Prince full amnesty to the revolutionists of Côtes-de-Fer, excepting Gen. Cheovil Mode and other members of the Revolutionary Committee. At the foreign consulates in Jacmel 280 refugees were awaiting the President's decision to execute or pardon them.

On March 1, Judge Hughes, of the United States Circuit Court, sitting at Richmond, Va., refused to confirm the sale of the arms and munitions of war seized on the schooner E. G. Irwin, intended for the Haytian insurgents. They were purchased at auction in bulk on February 28, by a New York firm. The judge considered the amount ($2,580) bid at the sale entirely inadequate to the invoiced cost of the material($7,500), and ordered a new sale.

When summoned in March to deliver to the authorities the army deserters who sought refuge with them, the foreign consuls at Jacmel refused, on the ground that during a civil war there were no recognized deserters.

In April the Haytian Government put into circulation the dreaded additional $1,000,000 of paper money, which had a depressing effect upon commerce. Coffee was at the time quoted at 9½ to 9¾ cents; cocoa, 8½ to 9 cents; and logwood, $6.50 to $7.

The number of persons killed during the revolution was officially declared to have been 7,000. The disappearance of several persons implicated in the revolution caused considerable commotion. On June 17 a conflagration reduced to ashes nearly half of all the buildings at Jérémio, the business quarter suffering very heavily.

On October 3 the Chamber of Representatives passed the indemnity bill, fixing the amount to be paid to claimants who suffered through the riots of September 22 and 23 at

$588,418, payable in six equal installments, the first on November 30, 1884, the next on September 30, 1886, and on the same date in 1887, 1888, 1889, and 1890. The first payment of $98,069 was to be refunded out of an additional export duty of 10 per cent. that was to be levied.

On the occasion of the fifth anniversary of his accession to the presidential chair, October 23, General Salomon decreed full and unreserved amnesty to all that had been condemned for political misdeeds, whether then in Hayti or exiled.

A Question in Dispute.—In 1872 an American company established itself on the little Island of Navassa, one of the territorial dependencies of Hayti, and raised the American flag. Navassa is simply a guano-island, about twenty-seven miles from the mainland. This island, the Haytians claim, belongs to the republic, not only because it is a part of the same geographical system, but because it is mentioned by name as belonging to her political jurisdiction in her Constitution. At the time the island was taken possession of by this American company, there was a vigorous protest that this was done by a filibustering expedition, and the matter was made a subject of diplomatic representation on the part of Hayti in Washington. But the protests received no consideration, and nothing has since been done about it. The American firm remains in possession, exporting the guano; claiming the right to do this under sections 5,570 to 5,578 Revised Statutes, which provide that whenever any citizen of the United States discovers a deposit of guano on any island not within the lawful jurisdiction of any other government, and not occupied by the citizens of any other government, and takes peaceable possession thereof, and occupies the same, such island may, at the discretion of the President, be considered as pertaining to the United States. The demands of the Haytian Government for redress have been renewed.

The Coffee-Crop of 1884–'85.—The following was communicated from Port-au-Prince under date of Sept. 10, 1884: "The first receipts from the new coffee-crop will make their appearance in October, and their quality will be fair. There has been rainfall enough just at the time it was needed. At present low prices in Europe and the United States the 31,000 tons will not command at the shipping ports over $6 the 100 pounds. We shall not have more than from $4,000,000 to $5,000,000 worth of goods to export, and our imports will also have to be limited to that much. Business generally has meanwhile been almost at a stand-still for two months past, because of a dispute that arose between the treasury and the bank about the paper money that was put into circulation.

American Trade with Hayti.—The following tables show the imports and exports in the American trade:

IMPORTS.

YEAR ENDED JUNE 30.	Coffee.		Total imports.
	Pounds.		
1880	22,659,285	$2,926,544	$4,389,166
1881	31,908,074	3,352,971	4,717,269
1882	22,527,950	2,106,874	3,387,937
1883	17,944,600	1,834,915	2,971,515
1884	16,285,183	1,292,491	2,339,173

EXPORTS.

YEAR ENDED JUNE 30.	Fish.	Cotton, manufactures of.	Wheat-flour.		Provisions, comprising fish and dairy products.	Total exports of domestic merchandise.
	Dollars.	Dollars.	Barrels.	Dollars.	Dollars.	Dollars.
1880	564,639	450,756	85,356	526,487	1,081,102	3,591,150
1881	611,327	394,097	174,982	1,029,357	1,319,627	4,372,331
1882	440,390	278,701	91,664	626,880	999,339	3,195,981
1883	453,048	370,368	96,208	547,770	897,854	3,163,783
1884	357,307	461,677	72,882	403,208	729,182	2,785,150

American Manufactures.—In his report to the Department of State, Consul-General Langston writes as follows:

> The imports from the United States have consisted for the most part of provisions, such as pork, beef, hams, flour, sugar, rice, codfish, herrings, mackerel, butter, lard, cheese, canned meats and fruits, and soap, drugs and medicines, paints, hardware, agricultural implements, hoes, shovels, spades, axes, furniture and lumber, shoes, and carriages. For many years past, too, denims have been imported and used in Hayti. In fact, they have constituted for some time the chief article of that special manufacture held in greatest demand in this country, and it is now conceded that they do, and will continue to hereafter, hold the mastery in the Haytian market. They will also prove, as many of the most intelligent merchants of the country predict, the forerunners of the early and general introduction of American cotton goods, not only into Hayti, but into the West India Islands. And this result will be produced upon the real merit of the goods referred to, in spite of efforts made by competing manufacturers in other countries, even where more convenient terms of credit are given merchants, and special endeavor is made to accommodate what are falsely supposed to be the circumstances of the Haytian customer, with a cheap, inferior article. American denims, as compared with all others, are at a premium in the markets of this country. Imitated false trade-marks do not deceive in this matter either, for the texture and quality of the goods constitute a guarantee appreciated by the buyer. It is not strange, therefore, that the Haytian mountaineer, in describing his desire for such article, with other words failing him, calls it "the cloth in which the Haytian is not cheated."

HENDRICKS, THOMAS ANDREWS, Vice-President of the United States, born near Zanesville, Ohio, Sept. 7, 1819. On the maternal side he is of Scotch descent. His mother, Jane Thomson, was a granddaughter of John Thomson, who emigrated from Scotland to Pennsylvania before the Revolution, and, by his representations of the advantages of the country, induced a large following of Scotchmen, by whom Cumberland County was chiefly settled. Thomas's grandfather was one of the pioneer settlers of Westmoreland County, Pa., and held various township and county offices, and was a member of the State Legislature. John Hendricks, the father of Thomas, was born in Ligonier valley, and not long after his marriage he moved to Zanesville, Ohio, and on a farm near that place Thomas was born.

When he was six months old his parents removed to Madison, Ind., then the residence of his uncle, William Hendricks, who was successively a member of Congress, Governor of the State, and United States Senator. John Hendricks was appointed by President Jackson a Deputy-Surveyor of Public Lands, and long served in that capacity. In 1832 he removed again, and located a homestead in the then sparsely-settled county of Shelby, and the county town, Shelbyville, is upon a part of the old Hendricks farm.

In this home Thomas A. Hendricks passed his boyhood till 1837, when he entered Hanover College, at Hanover, Indiana, from which he was graduated in 1841. His brother, Abram Hendricks, went through the course at the University of Ohio and at Hanover, and became a Presbyterian clergyman. Thomas went to Chambersburg, Pa., studied law in the office of his uncle, Judge Thomson, was admitted to the bar in 1843, and returned to Shelbyville to practice. His success in his profession was phenomenal. In 1845 he married Eliza C. Morgan. They have no children, their only son having died in infancy. In the same year, at the age of twenty-six, he was sent to the State Legislature, where he served one term, but he would not accept a re-election. In 1851 he was elected without opposition a member of the convention that was called to revise and amend the State Constitution of Indiana, and was prominent and efficient in that work.

THOMAS ANDREWS HENDRICKS.

In 1851, and again in 1853, he was a member of Congress from the Fifth District of Indiana. At the close of his second term he intended to return to his law practice, but President Pierce appointed him Commissioner of the General Land-Office, and he served in that capacity for four years, administering the affairs of the office with great ability. In 1860 he was nominated as Democratic candidate for the governorship of Indiana, but was defeated by the Republican candidate, Henry S. Lane, who became Governor by 9,757 majority. In the same year Mr. Hendricks removed from Shelbyville to Indianapolis, where, in 1862, he formed a law partnership with Oscar B. Hord, extended in 1866 to Mr. Hendricks's cousin, Col. A. W. Hendricks, under the firm title of Hendricks, Hord, & Hendricks.

From 1863 to March, 1869, Mr. Hendricks was a member of the United States Senate from Indiana, and was regarded as a Democratic leader in that body. He served efficiently on the Committees on Claims, the Judiciary, Public Lands, and Naval Affairs. He strongly opposed the Republican plan of reconstruction, and opposed the amendments to the Constitution as being hasty. He did not wish to hinder the progress of rational settlements of great difficulties, but wanted to make haste slowly. In 1864 he advocated and voted for large appropriations to bring the war to a close, and spoke eloquently in favor of an amendment to increase the pay of the soldiers 50 per cent., because of the depreciation of the currency.

In the Democratic National Convention of 1868, in New York, on the twenty-first ballot, he received 132 votes as candidate for the presidency, standing next to Gen. Hancock, who received 135½; but on the final ballot Horatio Seymour was nominated. In the autumn of that year he was again a candidate for the governorship of Indiana, but was defeated by 941 majority by the Republican candidate, Conrad Baker, who afterward became a law partner of Mr. Hendricks. At the close of his senatorial term he returned to Indianapolis, and resumed the practice of his profession.

In 1872 he was elected Governor of Indiana, defeating the Republican candidate, Thomas M. Brown, by a majority of 1,148. In July, 1874, he was permanent chairman of the State Democratic Convention, at Indianapolis. In the National Democratic Convention at St. Louis in June, 1876, he received 133½ votes for the presidential nomination, and, when Samuel J. Tilden was nominated, he received 730 out of 738 votes as candidate for the vice-presidency.

In 1877, and again in 1883, accompanied by Mrs. Hendricks, he made a brief tour in Europe as a relaxation from his arduous professional pursuits. He was a member of the National Democratic Convention at Chicago in July, 1884, and in behalf of the Indiana delegation nominated Joseph E. McDonald, of that State, for the presidency. After the nomination of Grover Cleveland, William A. Wallace, of Pennsylvania, nominated Thomas A. Hendricks for the vice-presidency, and the entire 816 votes cast for him made him the unanimous nominee of the convention. He was at Saratoga when he was officially notified of his nomination, and subsequently made formal acceptance in a brief letter. (For the result of the election, see CLEVELAND, GROVER, and UNITED STATES.)

Mr. Hendricks is five feet nine inches tall, weighing one hundred and eighty-five pounds, and, from his irreproachable habits through life, is still strong and vigorous. He is a consistent member of the Protestant Episcopal Church, and his private life is without a stain.

HONDURAS, a republic of Central America. Area, 39,600 square miles; population, 400,000, of whom fewer than 10,000 are pure whites, the remainder being mestizos and Indians. It has a coast-line of 60 miles on the Pacific and 400 on the Atlantic. The Cordilleras mountains traverse the republic 60 miles from the Pacific, in a northwest and southeast direction, and contain many rich veins of silver, gold, and other minerals.

The climate, twenty miles from the coast and in the mining districts, is exceptionally healthful, the temperature seldom falling below 60° or exceeding 85°.

Government.—The presidential term is four years. The legislative department consists of a Senate and Chamber of Deputies composed of members elected from the thirteen departments into which the republic is divided.

The President, Gen. Luis Bogran, was elected on Nov. 27, 1883. The Cabinet was composed as follows: Minister of War, Education, and Justice, Dr. Rafael Alvarado; Minister of Foreign Affairs, Señor Jeronimo Zelaya; Minister of the Interior, Señor Cresencio Gomez; Minister of Finance, Señor Abelardo Zelaya; and Minister of Public Works, Señor Francisco Planas.

The United States Consul at Ruatan and Trujillo is Mr. W. C. Burchard.

The Consul-General of Honduras at New York is Mr. J. Baiz; at San Francisco, Mr. W. V. Wells; the Consul at New York. Mr. E. G. Marsh, and at New Orleans, Mr. L. M. de Avendaño.

Finance.—The budget estimate for 1884 placed the income at $1,100,000, and the outlay at $1,004,567.

The home indebtedness consists of $700,000 bonds, while the floating debt amounts to $50,000.

Railroads, etc.—The line between Puerto Cortez and San Pedro, 60 miles, is in operation.

There were, in 1883, 63 telegraph-offices, with 230 operators. Length of lines, 1,360 miles; number of messages, 107,730. Receipts, $12,620; expenses, $11,784.

In 1883 there were 28 post-offices, forwarding 162,894 letters, 2,290 postal-cards, and 134,480 newspapers and samples: together, 299,614 items of mail-matter. The receipts amounted to $4,090, and the expenses to $22,913.

Ports.—On the Atlantic there are Trujillo, Puerto Cortez, Omoa, Yriona, and Ruatan; on the Pacific there is Amapala. The port of Puerto Cortez affords an excellent harborage for vessels of all draughts, and perfect protection from "northers." On the north side of the harbor are the wharf and depot of the Interoceanic Railroad, this being the Atlantic terminus of the partially completed railway that is to cross the Republic of Honduras to the Gulf of Fonseca on the Pacific, 220 miles. Prior to the building of this section of the road Puerto Cortez was known as Point and Bay of Caballos, and of no importance; at present it is the business center for all the shipping interests of the interior and surrounding country, which formerly, and for nearly 300 years, were assembled at Omoa, ten miles westward. In order to afford the New York market a steady supply of cabinet-woods and bananas from this part of Honduras, the United States Mail Steamship Company now runs fast steamers direct between Puerto Cortez and New York, with an average cargo of 8,000 bunches of bananas.

Ruatan Island, with its neighbors, forming the group known as the Bay Islands, although comparatively unknown, is one of the most fertile. It formerly belonged to British Honduras, but for the past twenty years has been under the Republic of Honduras, and yields a fair amount of revenue. Ruatan is thirty-seven miles in length, and from three to four miles wide, and has an undulating surface, the hills rising from 200 to 600 feet. The land yields cocoanuts, bananas, plantains, and pineapples. The annual value of cocoanuts is about $500,000, and of pineapples $1,000,000. The bulk of imports is from the United States *via* New Orleans by steamers every seven days, sailing under the Honduras flag, and carrying the mails. Some of the so-called "cocoanut walks," or plantations, consist of 8,000 to 10,000 trees, each bearing 100 to 200 nuts, which are sold at $15 to $30 a thousand.

Mines.—The causes that led to the long abandonment of the Honduras mines, and have prevented their reopening by the natives, are common to all the Spanish-American mining districts, and are the same that caused the old "Frias" mine in Tolima, Colombia, and the "El Callao" of Guayana, Venezuela, to remain unworked for over fifty years. The separation from Spain revolutionized the labor conditions of these countries. The liberated slaves either refused to work, or were impressed into the military service of the rival revolutionary factions. In the mean time the mines filled up with water or caved in, and were abandoned. In the Spanish-American method of mining, machinery was unknown, and all work, of whatever magnitude, was done with men, or left undone. The mines below water-level, or those above, to which, owing to their situation, it was impossible to drive adits for drainage, were kept free of water by gangs of men who carried it out in hide-buckets on their backs. Another cause of the abandonment of many mines was deficient ventilation. Natural ventilation was the only system known, and, when two openings with considerable difference of level could not be obtained, the extent of the work was limited. The mining-tools were the bar and the horn spoon. In hard rock a short drill and powder were used. The mines were opened sometimes with drifts or adits, but most frequently on the crop. An opening was, for example, made twelve feet in depth, and a notched log set up the side for a ladder. A platform or shelf was left, and a second hole sunk and another log set up; this process was continued until the water or lack of ventilation compelled a halt. At convenient distances levels were driven in the vein and the richest chimneys of ore worked out. The roof was kept up with natural pillars or with wood, which is abundant. All the water and material were carried up these ladders on the backs of men, and this is still the case in the mines worked under native auspices.

The methods of reduction were as crude as the system of mining was primitive. The ore was prepared for the "arrastra," in which it was pulverized, by being broken into small pieces with hand-hammers. The best pieces were selected for treatment, and, after being ground in the "arrastra," were amalgamated by the barrel or "patio" process. Good authorities estimate that not more than 60 per cent. of the assay value of the ore is saved by this treatment, while the expense, owing to the time consumed, labor expended, and loss of mercury, is very great. The lowest cost at present of mining and working the ores, by the native methods, at Tuscaran, is $25 a ton.

In order to encourage the development of mines, the mining laws have during late years been modified so as to place foreigners on an equality with natives in taking up new or reopening abandoned mines. Mining machinery and supplies are admitted duty free, and there are no export duties on the products of mines. Meanwhile the Government of Honduras, with the view of informing the American people as to the resources of Honduras, caused samples of ores and minerals to be made and shipped to San Francisco, where a collection of them was placed on exhibition. Similar steps to advance the material interests of the country were supplemented by the grant, under authority of the legislature, of valuable abandoned mines and reduction rights to American capitalists, and are now bearing fruit in the rapid development of the country. The mineral or mining district of Tuscaran is in one of the most healthful and delightful departments of the republic. It is 3,000 feet above the level of the sea, and the climate varies during the year only from 60° to 85° Fahr. The nights are cool, the water is excellent, and the mineral district presents the anomaly of a mining camp surrounded by the intelligence, refinement, and culture of the best citizens of the country. These mines have been worked for the past 150 years in the old, rude Spanish way. The native reduction-works have a capacity of about fifteen tons a day, and are kept running to their full extent.

New York capitalists have formed companies to work mines in this district, and are sending on large plants of machinery, with engineers and men. Among the historical mines controlled by these companies are the Quemasones, the Guayabilla, Sacramento, Flores, Tamagas, California, and Santa Elena.

Commerce. — The imports during late years have averaged $1,500,000 per annum, and the exports $1,600,000. The latter embrace $600,000 of bullion, $200,000 worth of indigo, $150,000 of cattle, $180,000 cabinet and dye woods, and $100,000 of hides and skins.

HUNGARY. See AUSTRIA-HUNGARY.

HYDROPHOBIA. This terrible and mysterious malady has hitherto been little understood by physicians, and when fully developed it has been impossible to arrest its course. Several theories have been advanced as to the cause of the disease. Pasteur believes that he has discovered certain micro-organisms that are the essential virus of rabies. Koch is equally confident that these parasites, though undoubtedly present, have nothing to do with the peculiar phenomena. The ingenious idea has been advanced that small blisters or "byssi" appear beneath the tongue in one to three weeks after the bite is received, and that these blisters, in some mysterious way, stand in the relation of cause and effect to the hydrophobic manifestations. In accordance with this theory, it has been claimed on very good authority that the disease has been warded off by promptly cauterizing these vesicles. Even the distinguished French physician Trousseau lends his support to this practice. But by far the most important observations with regard to this fatal malady have been recently reported by M. Pasteur, whose name is so famous in connection with the germ-theory of disease. He has been engaged for four years in making experiments with the virus of hydrophobia, and the announcement of his results has created a profound impression upon the scientific world. His deductions are briefly these:

1. The poison of hydrophobia, if transmitted from a dog to a monkey, and then from monkey to monkey, loses some of its power with each fresh inoculation. The poison never acquires the same virulence that it had at first.

2. When transmitted to successive animals of the same kind, the virus gains in power.

3. Virus that has once been diminished by passing through animals of different kinds can again be increased in activity by being transmitted to animals of the same kind.

The importance of these experiments will be appreciated when we hear that M. Pasteur believes he has at last discovered a cure for hydrophobia. He says, "Thanks to the length of the period of incubation of rabies, when communicated by the bite of a rabid animal, I have reason to believe that we can with certainty produce a condition of insusceptibility in those who are bitten before the fatal malady is due." The distinguished *savant* has not made this confident assertion without having a strong basis of fact upon which to support it. He is well known to be an accurate and painstaking observer, and statements that might sound chimerical when proceeding from a lesser man deserve careful consideration when they are made by him.

M. Pasteur himself is far from being prepared to put his theory to the test by inoculating a human being with the virus of hydrophobia; he thinks that many additional experiments must be performed upon animals before he will be justified in venturing upon this step. But his statements have received ample confirmation. The committee appointed by the International Medical Congress to test the value of the communications that he made to that body have already reported upon their first series of experiments. Forty-three dogs were selected, nineteen of which were inoculated with the virus of rabies. All of the animals were then exposed to the bites of rabid dogs; the nineteen vaccinated animals alone escaped, the others being attacked with hydrophobia.

I

IDAHO. **Territorial Government.**—The following were the Territorial officers during the year: Governor, John N. Irwin, succeeded by William M. Bunn; Secretary, Edward L. Curtis; Comptroller and Superintendent of Public Instruction, James L. Onderdonk; Treasurer, John Huntoon; Chief-Justice of Supreme Court, John T. Morgan; Associate Justices, Norman Buck and Henry E. Prickett.

Financial.—The Territory is practically free from debt, having a funded indebtedness of $69,268.60, which is represented and to be paid as follows:

Bonds due Dec. 1, 1885	$22,553 55
Bonds due Dec. 1, 1891	46,715 05
Total	$69,268 60
To offset this there is cash on hand	65,537 91

This result has been achieved under a reduction in the tax rate of from 75 cents to 40 cents on the $100 within the past three years, and from 40 cents to 25 cents during the past year, and during that time, owing to the increase of population, a heavier drain by the prison, care of indigent sick and insane, etc., the current expenses of the Territory have more than doubled. There is due from the counties, on the Territorial tax for this year, the sum of $35,980.54. The heaviest burden of expense to which the Territory is subjected is the care of the Territorial prisoners. The amounts expended on such during the past two years are as follow:

United States Marshal's bills	$80,890 00
Sheriffs' bills for transportation	5,892 40
Rewards paid for capture of escaped prisoners	810 00
Total	$87,092 40

The following table shows the number of property tax-payers and the total valuation of the assessment-rolls for the past seven years:

	Tax-payers.	Assessment.
1878	8,892	$4,520.800 50
1879	5,518	5,926,149 60
1880	5,600	6,408,089 14
1881	6,961	8,066,865 75
1882	8,162	9,339,071 05
1883	10,588	18,988,412 81
1884	12,271	15,497,598 84

The figures given for 1884 have reference only to what are known as the "original assessment-rolls." The "subsequent assessment-rolls" to be reported in January, 1885, will doubtless increase this amount. As the assessed valuation does not represent one half the actual valuation, and does not include unpatented mines, we may safely place the actual valuation of the Territory, apart from its unpatented mines, at over $31,000,000.

Educational.—The number of children between the ages of five and twenty-one, in 1883, was 10,936; in 1884, 13,140; school districts in 1883, 198; in 1884, 238. Graded schools have been established in Boisé City and Lewiston. The number of pupils attending the public schools during the past year was about 8,500. Idaho supports 20 patients in the Oregon Insane Asylum. There were 64 convicts in the Territorial Penitentiary. It is claimed that the Territory has a population of 80,000, increasing at the rate of 20 per cent. a year.

Mining.—The Governor, in his report to the Secretary of the Interior, says:

> Mining is our chief source of wealth, and employs in this Territory a greater number of men and a greater amount of capital than any other industry. The development in gold and silver during the past year has been at a ratio of 50 per cent.; the output of mineral wealth of the Territory being, as nearly as can be ascertained, about $7,000,000. Idaho has greater mineral belts than any other Territory or State in the Union. The most extensive belt lies on the western slope and the spurs of the Rocky mountains, that enter the Territory in Oneida county, and run the entire length of it to Lake Pend d'Oreille, 410 miles. The mines and discoveries on this immense belt now being worked begin in the Wood river country and extend to Cœur d'Alêne. All that country on this belt lying between Sawtooth, in Alturas county, and Pierce City, in Shoshone county, is unexplored. The districts that have attracted marked attention during the past year are the Wood river, Lost river, and Cœur d'Alêne. The Wood river district is now generally conceded to be the richest silver-lead producing country in the world. The general average of the ores assays 143 ounces of silver and 63 per cent. lead to the ton. In all cases the ores have steadily increased in value as depth has been attained. The Bullion is the greatest belt in this locality, being from three to eleven miles in width, and has been explored from Bellevue to Smoky, thirty-seven miles. The next belt in importance is the Elkhorn. It extends from the East Fork of Wood river to Lake Creek, nine miles. There is also the Muldoon belt, running from Muldoon to East Fork. The output for the year ended June 30th was about $3,500,000. The Lost river is a new district, in Custer county, directly over the border of Alturas county. This camp has attracted considerable attention during the past year, and large quantities of carbonates and galena-ores have been discovered. They are very similar to the product of the mines of Leadville, Col. In addition to the silver-bearing ores, some fine copper-ore has been discovered, which promises largely. The Cœur d'Alêne country has surely been more misunderstood and suffered more from misinformation and mismanagement than any district ever opened. Several thousand men, without any definite idea of what was needed, and with no knowledge of the country, stampeded there in midwinter, to find themselves confronted with from three to six feet of snow, instead of naturally developed gold-mines of fabulous richness and marvelous extent. For months after their arrival nothing could be done in the way of mining. The sufferings of the majority were intense. Until May there were none of the necessary appliances for successful mining. Since the weather has permitted it, some mining has been done, and the yield has been fine. The Atlanta district has been retarded by reason of its inaccessibility. This will shortly be remedied, as surveyors are now laying out a wagon-road from Boisé City to Atlanta. A year hence the road will be completed. The ores of this district are very rich and apparently plenteous.

Railroads.—During the past year 236 miles of railroad have been completed in the Territory. The Oregon Short Line has been completed, making a continuous line from Granger, on the Union Pacific, to Portland, Oregon. The following table gives the mileage of railroads in operation in the Territory:

	Miles.
Utah and Northern	208
Oregon Short Line (main line)	452
Oregon Short Line (Wood river branch)	70
Northern Pacific	90
Total	820

Agriculture and Stock-Raising.—Agriculture has been steadily on the increase. The considerable mining towns and camps afford a market for the farmer. Wheat, barley, potatoes, and garden vegetables, yield abundantly. The valleys are admirably adapted to the growth of fruit. In stock-raising, at least 1,500 men are employed, and certainly $10,000,000 invested. The increase in the herds during the past five years will reach 40 per cent. The number of cattle in the Territory is estimated at 360,000.

Reclamation of Desert Land.—The progress of this most important work may be seen from a passage in the Governor's message:

> During the past year there has been a marked movement in this direction, and within another year thousands of acres of splendid arable land will be added to the already great area of the Territory. In a few years an acreage greater than the whole State of Rhode Island will be reclaimed in the Snake river valley alone, and changed from an arid, parched, and unsightly desert, into rich and blooming agricultural lands, safe from drought or floods of rain. This happy condition is entirely attributable to the Desert-Land act. Should the act be repealed, these rich valleys would pass into the greedy clutch of the autocratic power of the Mormon Church. Near Blackfoot,

a canal is nearly finished that will reclaim between 40,000 and 50,000 acres. In Cassia county (along the south side of the Snake river), Raft river, Goose creek, and many smaller streams are owned entirely by the Mormons and used by them for irrigation purposes. At Shoshone, in Alturas county, twenty-five miles north of Snake river, Little Wood river has been turned on the desert, and a thriving town with its outlying farms has grown and is growing, where but two short years ago was a sage-brush-covered, desert plain. In the Bruneau valley 60,000 acres are already under cultivation, and a canal has been started to cover from 25,000 to 30,000 acres more. In Wood river valley a canal has been constructed and irrigates over 20,000 acres, while below these now fruitful acres lie 50,000 acres that will shortly be covered with water and cultivated. The Idaho Mining and Irrigation Company of New York is constructing a canal with a capacity of 4,000 cubic feet of water per second, which takes the waters of the Boisé about seventy-five miles above its confluence with Snake river. This canal will irrigate and reclaim about 600,000 acres of land on the north side of Snake river and south of Boisé City. On Payette river two canals are nearly completed that will cover about 50,000 acres, while a third is contemplated that will reclaim 30,000 acres more. On the Weiser about 75,000 acres are being brought under irrigating ditches, there being three or four different canals now building. In addition to the above, a plan is maturing to take the waters of Snake river and reclaim nearly 2,000,000 acres of valley land.

Mormonism.—On this vexed subject, which is becoming involved in the politics of the Territory, the Governor expresses his views with great emphasis:

The question of polygamy has grown to such gigantic and monstrous proportions as actually to overshadow our present and imperil our future as a Commonwealth. With Utah on the southern borders of Idaho, crowded with Mormons, the passes through the Owyhee mountains at hand and inviting immigration, swarms of the faith of filth thronged through the passes, pre-empted the land, founded villages, erected temples of idolatry, and have since lived in defiance of all law, except the canons of the Mormon Church and the direct commands of the apostles of lechery. Their numbers are so considerable, their organization so close, and their obedience to the commands of church so servile, that they are able, by alliance with one of the political parties of the Territory, to thwart justice, warp judgment, and control legislation to the extent of preventing the passage of any laws that would interfere with their fecund and feculent institution. I feel that in the near future this polluting thing must be checked, the barbarous and blasphemous practices and tenets eradicated, uprooted entirely, or the destiny of this great and rich public domain will be periled beyond bloodless redemption. All this Territory asks is, that the line be drawn at the forty-second parallel, beyond which no polygamous Mormonism may exist, where one wife shall content one man, and both man and wife shall acknowledge allegiance to the laws of the land first and of the church afterward.

Political.—The Republican Territorial Convention met in Boisé City on September 11, and nominated Theodore F. Singiser for reelection as delegate to Congress. The following are among the resolutions passed:

That we view with concern and alarm the combined, organized, and constantly increasing encroachments upon our Territory of the herd of foreigners under the auspices and commands of the Mormon Church in Utah. That already the Mormon Church has control of three counties in Idaho. That their power is daily increasing, and that unless a firm and united stand is taken and radical measures adopted by all of our citizens, irrespective of party alliances, the day is not far distant when our fair and prosperous Territory will be under the control of the alien and hostile element now wielding complete sway over the Territory of Utah. That the Democratic party, by their fawning upon this element for their political support, are alone responsible for the power already exercised by the Mormon Church in Idaho.

That it is the sentiment of the Republican party of Idaho that there should be a reapportionment of representation in the Legislature, based upon our present population, and we charge that the Mormon Democracy of Idaho, in its efforts to preserve the Mormon power in our Legislature, and deprive the chief anti-Mormon county in the Territory of a just representation, is responsible for the failure to reapportion the Territory according to a just and equitable standard.

That the wishes of the people of northern Idaho in regard to annexation to Washington Territory should be faithfully and justly represented. It is a question of local importance with the people of that section, and demands recognition and support in proportion to the unanimity of their expression on that subject.

The Democratic Territorial Convention met at the same place, September 12, and nominated John Hailey for delegate. Anti-Mormon resolutions were laid on the table. The election on the 4th of November resulted in the choice of Hailey. The vote was as follows: Democratic, 6,992; Republican, 6,206; scattering, 90. The vote in 1882 was: Republican, 7,183; Democratic, 4,035; scattering, 10.

Legislature.—The Legislature of 1884–'85 met on December 8, and was in session at the close of the year. It is politically constituted as follows:

	Council.	House.
Republicans	6	11
Anti-Mormons	2	4
Democrats	3	6
Mormons	1	3

The Anti-Mormons act with the Republicans. The most important law passed before the end of the year was one directed against Mormons, requiring county and precinct officers, before entering upon the discharge of their duties, to give bond with two or more sureties in considerable sums for the faithful discharge of their official duties, and to take and subscribe the following oath, to wit:

I do solemnly swear that I am a male citizen of the United States over the age of twenty-one years. That I had actually resided in Idaho Territory for a period of four months and in this county thirty days next preceding the date of my election (or appointment). That I am not a member of any order, sect, or organization which teaches, advises, or encourages the practice of bigamy or polygamy or any other crime defined by law, as a duty or privilege resulting or arising from the faith or practice of such order, sect, or organization; or that teaches, counsels, encourages, or advises any person or persons to commit the crime of bigamy, or polygamy, or any other crime defined by law, as a religious duty. That I am not a bigamist or a polygamist. That I do not cohabit with any woman not my lawful wife. That I do not either publicly or privately teach, counsel, encourage, or advise any person or persons to enter into bigamous or polygamous relations, or into the relation known as "plural or celestial marriage." That I regard the Constitution of the United States and the laws thereof and of this Territory, as interpreted by the courts, as the supreme law of the land; and that I will support and uphold the same, the teachings of any order, sect, or organization to the contrary notwithstanding, so help me God.

ILLINOIS. State Government.—The following were the State officers during the year: Governor, John M. Hamilton, Republican; Secretary of State, Henry D. Dement; Treasurer, John C. Smith; Auditor, Charles P. Swigert; Attorney-General, James McCartney; Superintendent of Public Instruction, Henry Raab; Railroad Commissioners, Edward C. Lewis, Charles T. Stratton, and William N. Brainard. Judiciary, Supreme Court: Chief-Justice, Benjamin R. Sheldon; Associate Justices, Alfred M. Craig, John M. Scholfield, T. Lyle Dickey, Pinkney H. Walker, John H. Mulkey, and John M. Scott.

Finances.—The receipts from all sources from Oct. 1, 1882, to Sept. 30, 1884, inclusive, were as follow:

General revenue fund	$4,293,789 87
State school fund	2,052,480 11
Military fund	131,895 07
Unknown and minor heirs' fund	1,308 69
Local-bond fund	2,606,022 21
Total	$9,085,445 95

The disbursements from Oct. 1, 1882, to Sept. 30, 1884, inclusive, were as follow:

General revenue fund	$4,148,686 15
State school fund	2,188,294 18
Military fund	177,451 75
Unknown and minor heirs' fund	826 84
Local-bond fund	2,518,297 88
Total	$8,972,986 25
Balance of all funds in State treasury Oct. 1, 1884	$8,902,511 69

The principal of the bonded debt of the State outstanding Oct. 1, 1884, remained the same as reported two years before, viz., $23,600.

The following tables show the aggregate assessments and equalization for 1883 and 1884:

FOR THE YEAR 1883.

	ASSESSED IN COUNTIES BY LOCAL ASSESSORS.			ASSESSED BY STATE BOARD OF EQUALIZATION.		Total.
	Personal property.	Lands.	Town and city lots.	Railroads.	Capital stock of corporations.	
Assessed	$168,087,310	$394,369,312	$194,015,669	$59,162,102	$2,218,430	$817,802,823
Equalized	167,755,439	383,443,160	205,325,590	59,162,102	2,218,430	817,904,721

FOR THE YEAR 1884.

	ASSESSED IN COUNTIES BY LOCAL ASSESSORS.			ASSESSED BY STATE BOARD OF EQUALIZATION.		Total.
	Personal property.	Lands.	Town and city lots.	Railroads.	Capital stock of corporations.	
Assessed	$160,596,416	$389,442,220	$196,508,865	$60,267,186	$2,087,902	$808,902,589
Equalized	161,887,199	378,255,279	206,672,287	60,267,186	2,087,902	809,169,803

ASSESSMENT OF LIVE-STOCK FOR 1883 AND 1884.

YEAR.	HORSES.		CATTLE.		MULES AND ASSES.		SHEEP.		HOGS.	
	Number.	Assessed value.	Number.	Assessed value.	Number.	Assessed value.	Number.	Assessed value.	Number.	Assessed value.
1883	915,136	$26,441,695	1,969,867	$20,581,411	109,486	$3,526,639	1,010,841	$1,264,202	2,583,136	$5,767,778
1884	916,909	26,058,694	1,990,927	20,176,698	107,970	3,368,640	933,830	1,088,858	2,808,898	5,205,740

ACRES IN CULTIVATION, ETC.

YEAR.	Wheat.	Corn.	Oats.	Meadows.	Other field products.	Inclosed pasture.	Orchard.	Woodland.
1882	2,308,676	7,296,230	2,449,840	2,623,295	710,749	4,688,099	302,798	3,414,417
1883	2,920,528	7,132,762	2,722,482	2,918,219	526,648	4,663,217	316,466	3,575,445

The Thirty-third General Assembly, by "An act to provide the necessary revenue for State purposes," approved June 25, 1883, authorized taxation to raise for general State purposes $1,500,000 on the assessment for 1883, and $1,500,000 on the assessment for 1884; and for State school purposes $900,000 on the assessment for 1883, and $1,000,000 on the assessment for 1884. The rates required to produce the amounts thus authorized to be raised were computed by the Governor and Auditor. On each $100 of the equalized assessment for 1883, for general State purposes, 20 cents; for State school purposes, 12 cents; on each $100 of equalized assessment for 1884, for general State purposes, 21 cents; for State school purposes, 14 cents—thus making the aggregate rate of State tax for 1883 32 cents, and for 1884 35 cents.

Education.—The following summary of statistics shows the condition of the common schools of Illinois for the year ending June 30,

1884. Some comparisons are made between the years 1874 and 1882, and the year 1884:

Whole number between 6 and 21 in 1884		1,069,274
Whole number between 6 and 21 in 1882		1,037,567
Whole number between 6 and 21 in 1874	938,878	
Increase in two years		31,707
Increase in ten years		130,396

The total number enrolled in graded schools in 1884 was 328,705; in 1882 it was 295,620; increase in two years, 33,085.

	1884.	1882.	Decrease.
Males enrolled in ungraded schools	210,098	219,254	....
Decrease in two years	.....	.....	9,161
Females enrolled in ungraded schools	189,883	198,557	....
Decrease in two years	.....	.....	8,674

The total enrollment in ungraded schools in 1884 was 399,976; in 1882 it was 417,811; decrease in two years, 17,835. The number of school-houses is given thus:

	1884.	1882.	1874.
Stone school-houses	208	211	219
Brick school-houses	1,336	1,268	1,119
Frame school-houses	10,178	10,041	9,318
Log school-houses	281	374	778
Total	12,003	11,914	11,434

The total number of schools in 1884 was 11,988, and the total number of teachers 19,897. The average wages paid to male teachers was $51.31 a month; to female teachers, $40.44. The total amount paid to teachers was $5,640,473.65. A fair accurate estimate of the cost of maintaining the public schools of the State, and the educational institutions of the State that belong to the public-school systen, is this:

Total expenditures by districts		$9,425,012 96
Deduct:		
Paid other treasurers, which is only a transfer	$86,585 51	
Paid on account of pupils transferred	5,661 16	
Paid on bonds refunded, low estimate	60,000 00	
		152,1^6 67
Net expenditure by districts		$9,272,816 29
Paid township treasurers		150,696 78
Incidental expense of trustees and treasurers		45,366 98
Compensation of county superintendents		83,652 88
County appropriation for institutes		1,381 75
Expense of State superintendency		8,200 00
State appropriations for:		
Illinois State Normal University		17,500 00
Southern Illinois Normal University		16,106 44
Illinois Industrial University		25,000 00
Expenditures for Cook County Normal School		28,737 98
Total		$9,643,359 00

The portion of this that has to be met by taxation is $8,444,489.75, a little more than one per cent. upon the assessed value of the property of the State.

The estimated value of school property is as follows:

School buildings and sites	$20,686,063 00
School libraries	112,870 00
School apparatus	239,556 00
Total	$21,038,489 00

This does not include the value of buildings, grounds, apparatus, and libraries held by State and county educational institutions. The estimated value of these is:

Illinois State Normal University	$186,560 00
Illinois Industrial University	478,187 74
Institution for the Deaf and Dumb	443,412 74
Institution for the Blind	174,920 51
Institution for the Feeble-Minded	200,095 15
Cook County Normal School	150,300 00
Total	$22,616,305 14

Charitable Institutions.—The following figures show the number of inmates, cost per capita, total expenditures, etc., of each State charitable institution:

	Average number of inmates.	Average cost per capita.
Northern Insane Hospital	525·55	$208 45
Eastern Insane Hospital	514·68	200 25
Central Insane Hospital	629·20	198 74
Southern Insane Hospital	576·32	178 18
Institution for Deaf and Dumb	368·18	271 88
Institution for Blind	98·04	334 88
Asylum for Feeble-Minded	291·69	160 41
Soldiers' Orphans' Home	317·08	170 58
Eye and Ear Infirmary	78·37	224 41
State Reform School	308·44	151 06
Total	3,702·40	......
General average	......	$200 06

The total expenditures by each institution were as follow:

Northern Insane Hospital	$184,480 59
Eastern Insane Hospital	429,978 92
Central Insane Hospital	190,011 85
Southern Insane Hospital	144,468 13
Institution for the Deaf and Dumb	110,868 55
Institution for the Blind	32,926 21
Asylum for the Feeble-Minded	64,834 89
Soldiers' Orphans' Home	61,387 22
Charitable Eye and Ear Infirmary	20,011 99
State Reform School	78,110 04
Total	$1,267,057 80

Penitentiaries.—The Northern Penitentiary at Joliet is self-supporting so far as ordinary expenses are concerned. The $50,000 appropriated by the last General Assembly as a contingent fund has not been drawn upon. This result has been produced by the favorable position and opportunities of the penitentiary for securing good contracts for the work of the prisoners.

The Southern Illinois Penitentiary at Chester is comparatively new and is still incomplete. It has only a capacity for taking care of 800 prisoners as a maximum. It has but one workshop, which is occupied by the contractors in shoe-manufacturing. It has also a brick-yard, making bricks from clay within the stockade, which is let to contractors. These two industries contract for and employ about 300 men at good wages. Of the average of 700 kept in the Southern Penitentiary, about 300 were let on contract work, while the remaining 400 were either employed in the immense stone-quarry within the stockade, reducing a hill of stone, and producing rip-rap and paving stone, which sold at good prices, or were doing work of State improvement about the penitentiary. Much work for the State for improvements about the penitentiary has been done by the convicts, which does not show in cash against the subsistence account.

High License.—The Supreme Court during the year affirmed the judgment of the lower court in the case of Timm *vs.* Harrison, Mayor of Chicago. This was a case brought by Timm on behalf of the Illinois State Liquor-Dealers' Association against Mayor Harrison to compel him to issue to the complainant a $103 saloon license, under a city ordinance passed prior to the time when the Harper law went into effect —July 1, 1883. The license was refused by Mayor Harrison, on the ground that the "Harper" law required the payment of $500 for a license to sell spirituous liquors within the State. Timm's bill set up the unconstitutionality of the law. The decision rendered was against the liquor-men, and pronounced the "Harper" law constitutional.

Military Affairs.—On Sept. 30, 1884, the Illinois National Guard was shown by official reports to number 4,939 officers and men. It is well organized into nine regiments of infantry, one regiment of cavalry, three batteries of artillery, and one detached company (colored) of infantry.

The Corn-Crop.—The area of the corn-crop of 1884 was 6,894,819 acres, which is less than that of any preceding year since 1878. The average yield for the State is 33 bushels an acre, which exceeds the yield since 1872, excepting the crops of 1875 and 1879. The aggregate corn-crop for the State for 1884 is 207,556,662 bushels, and exceeds the corn-crops of the three preceding years by 20,000,000 to 80,000,000 bushels. The average price in first hand is reported to be 29 cents a bushel. The price for corn has not ruled so low in the State since 1860, except in 1861, 1862, 1872, 1877, and 1878.

Political.—The Republican State Convention met in Peoria April 16, chose delegates to the National Convention of the party, and nominated candidates for Presidential Electors and State officers. The following were the nominees: For Governor, Richard J. Oglesby; for Lieutenant-Governor, John C. Smith; for Secretary of State, Henry D. Dement; for Auditor, Charles P. Swigert; for Treasurer, Jacob Gross; for Attorney-General, George Hunt.

The Prohibition State Convention met in Bloomington June 19, and nominated J. B. Hobbs for Governor; Dr. Perryman was nominated for Lieutenant-Governor; Hale Johnson, for State Attorney; Uriah Copp, for Treasurer; A. B. Irwin, for Auditor; C. W. Enos, for Secretary of State.

The Joint State Convention of the Greenbackers and Anti-Monopolists met in Bloomington August 27, and the following ticket was nominated: Governor, Jesse Harper; Lieutenant-Governor, A. C. Vandewater; Secretary of State, H. B. Baldwin; Auditor, E. F. Reeves; Attorney-General, John M. Gwinn; State Treasurer, B. W. Goodhue.

The Democratic nominees were: For Governor, Carter Harrison; for Lieutenant-Governor, Henry Seiter; for Secretary of State, Michael J. Dougherty; for Treasurer, Albert Orendorff; for Auditor, Walter E. Carlin; for Attorney-General, Robert B. McKinlay. The vote on November 4 was as follows: Republican Presidential Electors, 337,469; Democratic, 312,351; Greenback, 10,776; Prohibition, 12,074. The Republican nominees for State offices were all elected, by pluralities ranging from 14,599 to 24,806.

The appropriation for completing the State-House was approved by the people, and a constitutional amendment authorizing the Governor to veto one or more items or sections of a bill, and approve the residue, was ratified.

The Legislature of 1885 consists of 26 Republicans and 25 Democrats in the Senate, and 76 Republicans and 77 Democrats in the House —a tie on joint ballot, though some of the members are of independent proclivities. Extensive election frauds were brought to light in Chicago, especially in the Sixth Senatorial district, where an attempt was made to count out the Republican and count in the Democratic candidate, but without ultimate success. Ten Republicans and ten Democratic Congressmen were elected.

The Governor discusses the election laws, with special reference to the frauds just mentioned, and says: "I have no doubt whatever that it is not only the plain command of the law, by implication at least, that canvassing boards shall only canvass returns known to be true returns, and shall reject returns known to be false and forged, but that every sense of right and justice commands them to do it. Neither have I the slightest doubt that the power is vested by the Constitution and laws of the State in the Governor to refuse to issue certificates of election to persons shewn to have been elected on returns known and universally admitted to be false and forged, and not the expression of the will of the people; nor of his power to issue certificates of election to the person shown to be elected by true returns, if such true and legal returns were once made out, and their contents can be unquestionably ascertained, even if canvassing boards do, in violation of law, canvass the false returns, and thus attempt to show one elected who was not."

Chicago.—The total number of white persons in the city, as shown by the census taken by the Board of Education, on the 1st day of June, was 616,323, of which number 209,631 were German, 143,000 American, and 114,005 Irish. The total representation of the white nations that make up the population of Chicago was as follows:

NATION.	Population.	NATION.	Population.
American	148,000	Canadian	3,466
German	209,631	Greeks	33
Irish	114,005	Hollanders	2,969
Bohemian	23,281	Hungarian	278
Polanders	23,500	East Indians	8
English	90,142	West Indians	16
Norwegian	13,293	Portuguese	7
Swedish	23,755	Roumanian	11
French	8,481	Russian	1,506
Danish	5,971	Spanish	107
Italian	4,091	Swiss	272
Scotch	7,182	Welsh	1,118
Belgian	245	Sandwich Islands	7
Total white population			616,823

The question of the constitutionality of the act under which damages could be recovered from the owners of houses in which money had been lost in gambling, came up during the year in this city in the case of Learned *vs.* Tiernan. In 1876 the husband of the plaintiff lost $2,000 gambling in a house of the defendant. The wife brought suit for damages under the penal code, which allows triple damages for losses sustained in gambling. Judge Smith, of the Superior Court, declared the act unconstitutional for defect in the title.

INDIA, an empire and viceroyalty in Asia, subject to the British Crown. The area and population of British India, according to the census taken on Feb. 17, 1881, are as follow:

PRESIDENCIES AND PROVINCES.	Square miles.	Population.
Under the Governor-General:		
Ajmere	2,711	460,722
Berar	17,711	2,672,673
Coorg	1,583	178,302
Under Governors:		
Madras	141,001	31,170,631
Bombay, including Sind	124,122	16,454,414
Under Lieutenant-Governors:		
Bengal	193,198	69,536,861
Northwest Provinces and Oude	106,111	44,107,869
Punjaub	106,632	18,850,437
Under Chief-Commissioners:		
Assam	46,341	4,881,426
British Burmah	87,220	3,736,771
Central Provinces	84,445	9,838,791
Total British administration	911,075	201,888,897
Native states	471,549	52,002,924
Total	1,382,624	253,891,821

The male element predominates in the population, numbering 129,941,851 individuals, against 123,949,970 females.

Races and Creeds.—There were in 1881:

Hindoos	187,937,450	Sikhs	1,853,426
Mohammedans	50,121,585	Jains	1,221,896
Fire-worshipers	6,426,511	Parsees	85,397
Buddhists	3,418,884	Jews	12,009
Christians	1,862,634	Others	952,029
Total			253,891,821

Coolie Emigration.—The numbers of coolies who left India in search of occupation elsewhere during eleven consecutive years were as follow:

1872	11,064	1878	24,710
1873	20,067	1879	22,092
1874	29,243	1880	17,428
1875	25,825	1881	16,794
1876	11,489	1882	11,509
1877	10,560		

City Population.—The last census established the population of the largest cities as follows:

Bombay	773,196	Delhi	173,393
Calcutta	766,298	Patna	170,654
Madras	405,848	Agra	160,203
Hyderabad	354,962	Bangalore	155,857
Lucknow	261,303	Amritsar	151,896
Benares	199,700	Cawnpore	151,444

Government.—The Parliamentary Under-Secretary for India is J. R. Cross, M. P.; Permanent Under-Secretary, John A. Godley; assistant, H. G. Walpole—constituting the Ministry for India. Council of India: President, the Secretary of State; Vice-President, R. A. Dalzell, and fourteen members. Secretaries of the Departments: Military, Maj.-Gen. A. B. Johnson; Financial, H. Waterfield; Justice, A. C. Macpherson; Public Works, Railroads, and Telegraphs, J. Danvers; Revenue and Commerce, W. G. Pedder; Political Secretary, Col. Sir O. T. Burne.

The Viceroy and Governor-General is Lord Dufferin. Presidency of Bengal, Lieut.-Gov. A. Rivers Thompson. The Presidency of Madras, Gov. M. E. Grant-Duff. Presidency of Bombay, Gov. Sir James Ferguson.

The American Consul-General for India, at Calcutta, is J. A. Leonard; the Consul at Bombay is B. F. Farnham.

Army.—The British and native forces in India are composed as follows:

BRITISH ARMY, DEC. 31, 1883.	Men.
Horse of the line	4,866
Artillery	11,954
Sappers	298
Foot of the line	42,252
Total	59,370
Horses	2,641
Guns	294

NATIVE ARMY.

	Officers.	Rank and file.	Total.	Horses.
Guards	2	170	172	70
Horse, 42 regiments	300	17,500	17,800	18,000
Artillery	20	800	820	600
Sappers	40	3,200	3,240	300
Foot, 148 regiments	1,050	96,000	97,050	2,000
Superior officers	1,800	.....	1,800	1,000
Total	3,212	117,670	120,882	21,870

Finances.—The public debt of India stood thus on March 31, 1882:

Consolidated debt		£156,820,614
Payable in India	£88,653,162	
Payable in England	68,167,452	
Portions of debt not consolidated		15,321,943
Total		£172,142,557
Against debt March 31, 1881		170,834,615

The budget estimates were as follow:

	Revenue.	Expenditure.
For 1882-'83	£67,854,000	£67,654,000
For 1883-'84	67,274,000	66,274,000

ACTUAL INCOME AND OUTLAYS.

	GROSS INCOME.	OUTLAYS.		Total.
		In India.	In England.	
	Pounds.	Pounds.	Pounds.	Pounds.
1881-'82	75,144,601	58,154,128	14,407,746	72,561,874
1882-'83	70,125,231	55,236,632	14,181,966	69,418,598

On Aug. 9, 1884, the budget for India for 1884–'85 was submitted to the English House of Commons. From the documents accompanying the estimate it appears that the actual income during the fiscal year 1883–'84 had been £70,548,000, and the outlays £70,200,000. For the fiscal year 1884–'85 the income was estimated at £70,560,000 and the outlays at £70,241,000; there would consequently be an excess of revenue of £319,000. The net revenue to be derived during the current fiscal year from the opium monopoly was estimated at £6,241,000, being £1,627,000 less than the average of the five years preceding. The abolition of the import duty on cotton goods and the lowering of the salt-tax by the former Minister of Finance, Sir E. Baring, had increased the consumption of both articles so much that the loss of revenue, which had been estimated at £2,800,000, in reality did not exceed £2,213,000. The surplus revenue in 1883–'84 was shown to have arisen mainly from the larger revenue derived from Government railroads. It was believed, however, that the lower value of wheat and lessened export thereof would reduce earnings from railroad freights sufficiently to cause them to remain below the estimate for the current fiscal year. The pending frontier negotiations, it was believed, would also affect the 1884–'85 budget from expenses connected with the establishment of a more efficient service of advanced outposts. These shortcomings would therefore necessitate a new loan in England. The aggregate liabilities of the Government in India were stated to be £246,948,000, while there were assets in the shape of available funds and money due by county administrations, etc., to the amount of £22,000,000, and railroads and other public works worth £160,000,000 bearing 5 per cent. interest. After some debate of no special importance bearing on the finances and commerce of India, the budget was passed.

Silver.—The amounts of silver shipped from Europe in two years were:

	1884.	1883.
From London to—		
India	£5,370,736	£3,707,005
China	1,033,378	865,627
Straits Settlements	1,706,158	2,299,318
	£8,110,272	£6,871,950
From Venice	27,000	......
From Marseilles	331,250	176,346
Total	£8,468,522	£7,048,296

Railroads.—On March 31, 1883, there were in operation 10,317 miles of railway, 374 miles having been built during the fiscal year 1882–'83, while 2,338 miles additional were at the time either in course of construction or had been resolved upon to be built as speedily as possible. Without counting the subsidized lines, the capital invested in railways amounted, on Dec. 31, 1882, inclusive of the lines then being built, to £140,936,776.

	1881.	1882.
Gross earnings	£14,323,080	£15,231,262
Expenses	7,071,247	7,580,550
Net earnings	£7,251,833	£7,650,712
Profit on capital	5¾ per cent.	5¾ per cent.

The East Bengal Railroad paid the highest dividends, 10½ per cent. in 1882, and 9¾ per cent. in 1881; the next highest, the East India Railroad, 8⅞ per cent. and 9¾ per cent. The rolling stock consisted in 1883 of 2,453 locomotives, 5,585 passenger and 47,431 freight cars. The number of employés was 169,577 on Sept. 30, 1881, 162,043 of whom were natives, and a year later 185,736, 178,018 of them being natives.

Without counting the Assam, Jodhpur, and Pondicherry Railway, on March 31, 1884, there were in operation 10,832 miles. The gross earnings in 1883 had been £16,389,381, the expenses £7,961,772, leaving net earnings to the amount of £8,427,610.

The movement during three years is shown thus:

	1881.	1882.	1883.
Passengers	54,768,668	58,875,918	65,099,956
Freight, tons	13,214,074	14,583,248	17,069,264

In the summer of 1884 the Bombay Chamber of Commerce submitted a memorial to the Viceroy, urging that railway extension be prosecuted at the rate of 2,000 or 3,000 miles annually for the next ten years, at a cost of £20,000,000 per annum. The Chamber, at the same time, recommended that this sum be raised by sterling loans in London at a guaranteed interest of 3½ per cent. in perpetuity. A committee of the House of Commons, independently of the suggestion coming from Bombay, simultaneously recommended an advance of about £30,000,000 for the same purpose, on condition that private capitalists subscribe an equal amount.

J. M. Maclean, late proprietor of the Bombay "Gazette," meanwhile read a paper on the "State Monopoly of Railways in India," before the London Society of Arts. He contended that the custom, which Indian financiers found so convenient when they were preparing their annual budgets, of regarding the Indian railways as one great property, and thinking all was well, provided they could show a net surplus, led to results that were by no means advantageous or just to the trade of the country. The inherent weakness of the state monopoly became apparent when it was found that this system tempted the Government to cover deficits on unprofitable lines, by making illegitimate gains out of excessive rates charged on the traffic of productive lines; the commercial lines were forced to bear, not only their own expenses, but also a large proportion of the cost of working the lines constructed mainly for political purposes.

Ship Routes.—According to a statement made by Messrs. Duncan Brothers, of Calcutta, the amount of merchandise that is shipped to England from Calcutta began in 1882 to preponderate in favor of the Suez route, as compared with that around the Cape of Good Hope.

Telegraphs.—The number of offices in operation in 1883 was 824, exclusive of those connected with the railway service. Length of lines, 21,740 miles; length of wire, 62,830 miles, exclusive of 130 miles of cable; number of paid messages, 1,810,906. Receipts, £545,-815; expenses, £625,279.

Postal Service.—The following tabular statement shows the growing importance of the amount of items of mail matter dispatched:

	Offices.	Letters.	Newspapers.	Receipts.	Expenses.
1879–'80..	4,410	128,567,053	11,251,021	£985,812	£914,889
1880–'81..	4,522	14 ,585,105	11,942,804	999,288	962,591
1881–'82..	4.819	155,251,467	12,526,800	945,825	948,598
1882-'83..	5,810	168,119,898	14,075,677	971,638	958,778

The Afghan Frontier.—When, in March, 1885, the Afghan frontier question came to be settled between Great Britain and Russia, after the occupation of Merv by the Russians, February, 1884, the danger of seeing Herat fall into the possession of the Russians caused, both in India and England, the greatest excitement. On March 5, Baron de Staal, the Russian ambassador, had an interview with Mr. Gladstone and communicated a dispatch from M. de Giers, the Russian Minister of Foreign Affairs, in which he denied that the Russian occupation of Akrobat, Sulfikar Pass, and Sariyuz was designed to forestall the decisions of the joint commission on the Russo-Afghan frontier. He said the advance of the Russians from Puli-Khatum was only ordered after the Afghans, in July preceding, during the negotiations for the organization of the commission, had occupied Penjdeh, and in January had occupied Sariyuz, whence the Afghans withdrew on the advance of the Russians; that M. de Giers did not maintain the right of Russia to hold the disputed outposts, but that he refused to withdraw the Russian troops until the commission presented its report on the frontier question.

Newspapers.—India, in 1884, possessed 230 newspapers in the languages of the country. The first paper in a native language appeared in 1808, being founded by missionaries, and occupied entirely with religious matters. These papers have only occupied themselves with political affairs since 1860. Among the names they assume are: the "Mirror of Medicine," the "Noblest of all Papers," the "Ocean of Wisdom," the "Poet's Garland," and the "Water of Indian Life."

Goats and Famines.—According to the "Indian Forester," famines in India are caused by goats. The goats of India appear, as a rule, to live always on the brink of starvation, collecting a scanty livelihood out of the barrenest materials. They attack the green shoots and topmost twigs of every young tree they come across. A herd of goats, numbering 15,000 to 20,000, as is sometimes the case in those desert tracts, is not likely to leave much vitality in the saplings in its line of grazing. The old trees, unless re-enforced from time to time by a younger growth, die off, and whole forests thus disappear. Without forests the rainfall ceases, and without rain the crops fail. In spite of the enormous extent of the Indian plains, it is possible that the action of goats is thus indirectly responsible for the droughts.

Snakes.—The enormous annual loss of life in India by snake-bites, amounting to nearly 20,-000 persons, continues in spite of the wholesale destruction of these venomous creatures. The rewards paid by the Government to snake-destroyers show that there were killed in 1884, throughout India, 322,421, of which 262,384 were found in the Bombay Presidency alone. Local authorities are warned to remove from town or village sites, or their vicinity, aloe, cactus, or thorn hedges, ruined houses and walls, and the like, which harbor these reptiles.

Gold.—Interest in the India gold properties, which thus far have proved a lamentable failure, has revived in consequence of the success of the Mysore Gold Company. From June to November, both inclusive, this company crushed 622 tons of rock, which yielded 907 ounces of gold, the result of stamping 121 tons in November being three ounces a ton. Several defunct companies in the district were preparing to reorganize, and the prospect toward the close of the year was fair.

Petroleum.—The discoveries of petroleum at Sibi, near Quetta, in the northwest of India, may affect the future of the Russian wells at Baku, on the Caspian Sea, much more than it will American petroleum. It remains to be seen whether the Sibi strata will justify the hopes entertained of them, as they have not been thoroughly tested by boring. But arrangements were in contemplation to introduce Caucasian oil into India by way of the Suez Canal and the Red Sea.

Tea.—It appears from recent statistics that 1883 was a favorable year for tea-cultivation in Assam, the prices obtained being better than those of the previous year, and the outturn being nearly 7,000,000 pounds in excess of the yield of 1882. Many new gardens were opened. The total area of land held by tea-planters in 1883 was 928,664 acres—an increase of 140,302 acres over the area of 1882, and of 217,015 over the area of 1881. The yield of tea during the year was 52,171,207 pounds, of which the gardens in the Assam valley contributed 34,111,363 pounds, and the gardens in the Surma valley 18,059,844 pounds. The average yield per acre for the whole province was 323 pounds, as compared with 292 pounds in 1882. There has been a continuous increase in the production of tea in Assam during the past five years, the yearly quantity having risen from 31,386,636 pounds in 1879 to 52,171,207 pounds in 1883. Regarding the profits of the industry, the net returns upon the capital employed during 1883, by thirty-nine companies that struck balance-sheets for the year, were £307,971, or 2¼ per cent. on their capital; twenty-six companies that made a profit obtained a return of 5 per cent. on their capital, while eleven lost at the rate of 7 per cent. on their capital. There are now fifty-three tea companies registered in India.

Paper-making.—Paper-making on an extensive scale has been inaugurated in India. There are two mills in the neighborhood of Calcutta, one in Lucknow, one in Gwalior, and one in Bombay, all worked by machinery and natives with European overseers. Much of the Government paper is obtained of local manufacturers, and in August the Calcutta "Englishman," a daily of four large pages, was printed on paper made at Barrackpore, on the banks of the Ganges. The paper was equal to the imported if not superior, and the cost considerably lower. The cheapness of raw material, and Bengalee labor at $3 a month, are considerable items in questions of economy. In a recent report Mr. J. E. O'Conor, of the Indian Department of Commerce, thus criticises this subject:

> It is a curious thing that the Indian paper-mills should confine themselves to making paper of the coarsest kinds, using old gunny-bags for their material, and seeking everywhere for fibrous materials fit for their purpose, while the country sends rags and other materials fit for good paper to England and the United States. Last year the value of the exports of this stuff was Rs. 3.54.014. A considerable quantity of paper could be made out of 97,208 hundred-weight of rags and other paper-making materials, sufficient, at least, to make a very good beginning for a useful industry, the development of which in this country is so much desired.

Wheat.—The official report from Calcutta, dated Jan. 16, 1885, said that, in the Northwestern Provinces and Oude, the area under cultivation with wheat had been increased no less than 337,000 acres, the total area being estimated at 5,323,000 acres, against 5,106,000 in 1884.

The export of wheat from India in 1882 was 15,000,000 hundred-weight; in 1883 it was 22,300,000 hundred-weight.

The "Revenue and Agricultural Department of India" issued in January, 1885, the following report relating to the area under cultivation in wheat, as well as crop prospects at the time:

> The average area under wheat in India in ordinary years, according to a recent estimate, is about 26,000,000 acres, and the average gross production is nearly 7,000,000 tons. Of this area 18,000,000 acres, or nine thirteenths, lie in the four British provinces of the Punjaub, the Northwestern Provinces and Oude, the Central Provinces and Bombay. During the last year a system of monthly forecasts of the condition and prospects of the wheat-crop was tentatively started in these four provinces, and reports for November and December have now been received. In the Punjaub the sowings are above the average and prospects are considered excellent. The area under crop is estimated at 7,250,000 acres, the average area being 6,750,000 acres. In the Northwestern Provinces and Oude the November forecast was exceptionally favorable. An area of 5,500,000 acres had been sown, against an average of 5,000,000 acres, the seed had germinated well owing to the late October rains, and a bumper crop was predicted. The December forecast, however, is less favorable, as, owing to the entire absence of winter rains, the young crop has suffered. In the central provinces, owing to the early cessation of the monsoon rains, a smaller area than usual has been sown with wheat. The average area of recent rains has been nearly 4,000,000 acres. This year the decrease ranges in the several districts from 5 to 10 per cent. Present prospects are all that could be desired, as, owing to recent rain, the crop is in excellent condition. A special report from the Berars estimates the present year's crop at 845,000 acres, or 5 per cent. above the average, and says the crop is in good condition.

Irrigation.—The rainfall during a period of four months on the west slopes of the Neilgherries is about 400 inches, and on the mountains east of Calcutta 600 inches. In the Carnatic, the region south and west of Madras, there are only about 40 inches altogether. This falls principally in heavy bursts, often 10 or 12 inches in a night, thus giving half a year's supply in two showers. In the Madras Presidency alone there are 40,000 tanks for the storage of water, many of which are from 10 to 25 miles in circumference and from 10 to 60 feet deep. One of these reservoirs will contain 100,000,000 cubic yards of water. Besides these tanks there are many old irrigating canals leading off from the rivers. These are supplied by weirs built of immense stones across the streams, the ingenious construction of which by the natives has shown the British authorities the best way of doing similar work on a much larger scale across some of the largest rivers. For many years the Indian Government has been improving the ancient irrigating works and perfecting new systems. In the Tanjore district alone the returns to the Government from this policy have been enormous, the revenue having increased £350,000 a year, on an expenditure of £400,000. The system has been extended to other parts of India, and all the belts of land, comprising many millions of acres, that have been reached by this grand system of irrigation now present a marked contrast to the tracts of arid waste that met the eye of the traveler a few years ago.

Calcutta International Exhibition.—One of the reports on the American exhibit contained the following passages. It bore the date of Jan. 15, 1884:

> The space occupied by American manufacturers is not extensive, nor is the display imposing. However, there is reason to hope that those who are represented will either directly or indirectly be compensated for any expenditure incurred. There are manufacturers in the United States who do not show their goods at worlds' fairs for the mere purpose of extending their foreign business, but to demonstrate to unprejudiced judges that the exhibits will not suffer by comparison with those of any country. The value of the direct imports from the United States to this country during the fiscal year 1882-'83 amounted to Rs. 93,43,420, and of the exports direct from India to the United

States, as declared at the local custom-houses, to Rs. 3,31,64,455, giving a balance of trade in favor of India to the extent of Rs. 2,38,21,035. These figures do not represent the full value of the trade between both countries.

Commerce.—The ensuing tabular statement shows the foreign trade movements of India during two fiscal years, 1882 and 1883, in thousands of pounds sterling:

ARTICLES.	IMPORTS.		EXPORTS.	
	1881-'82.	1882-'83.	1881-'82.	1882-'83.
Rice and breadstuffs	....	....	17,178	14,547
Seeds and fruit	158	211	6,065	7,208
Groceries	1,951	1,791	6,135	6,564
Liquors, wine, and beer	1,309	1,334	....	....
Coal	1,020	1,005	....	....
Metals and their manufactures	3,467	4,589	....	....
Wood and stone	....	....	567	671
Textiles	749	1,074	21,456	22,497
Hides and skins	....	....	3,950	4,444
Drugs, dyes, resinous substances, and oils	951	907	6,294	5,675
Opium	....	....	12,481	11,481
Dry-goods	26,968	27,548	4,902	5,989
Other manufactures	3,805	3,874	255	215
Sundry goods	8,785	9,821	2,734	3,244
Total merchandise	49,118	52,099	81,963	83,485
Precious metals	11,323	13,453	1,100	1,042
Grand total	60,436	65,552	83,063	84,527

Cotton.—The export of cotton from Bombay has been as here given:

DESTINATION.	1884.	1883.
	Bales.	Bales.
To England	531,000	500,000
To the Continent	698,000	835,000
Total	1,229,000	1,335,000
Receipts	1,700,000	1,786,000

Indigo.—The export of indigo from Calcutta, crop of 1884, to December 31, was:

	Cases.
To England	2,700
To France	1,700
To the United States	2,600
Total	7,000

Stock, December 31, 81,000 maunds, of which 56,000 were Bengal and Tirhoot, and 25,000 from northern districts.

Rice.—The export of rice fron Rangoon, Akyab, Bassein, and Maulmain has been as follows:

PARTY.	1884.	1884.	1883.
	To Europe.	To other countries.	To Europe.
	Tons.	Tons.	Tons.
From Rangoon	365,000	128,200	312,000
From Akyab	87,400	22,700	160,550
From Bassein	117,800	400	154,230
From Maulmain	37,000	6,800	42,200
Total	607,200	158,100	668,980

Silk.—The silk export from Calcutta has been:

YEARS.	Bales.	Weighing.
		Kilogrammes.
1883	8,121	536,000
1882	6,909	456,000
1881	5,794	382,000

American Trade.—The American trade with British India sums up thus:

FISCAL YEAR.	Imports into the United States.	Exports from the United States to India.
1884	$19,550,458	$3,711,259
1883	19,467,800	2,186,611

INDIANA. State Government.—The following were the State officers during the year: Governor, Albert G. Porter, Republican; Lieutenant-Governor, Thomas Hanna; Secretary of State, William R. Myers; Treasurer, John J. Cooper; Auditor, James H. Rice; Attorney-General, Francis T. Hord; Superintendent of Public Instruction, John W. Holcombe. Judiciary, Supreme Court: Allen Zollars, Byron K. Elliott, Edwin P. Hammond, William E. Niblack, and George V. Howk, Judges.

Financial.—The following is a statement of the public debt:

FOREIGN DEBT.

Five per cent. State stock certificates	$14,468 99
Two and one half State stock certificates	2,255 13
Five per cent. temporary loan bonds, due December, 1889	200,000 00
Five per cent. temporary loan bonds, due April 1, 1889	385,000 00
Six 5 per cent. internal improvement bonds, due July 1, 1886	6,000 00
Total foreign	$607,825 12

DOMESTIC DEBT.

School-fund bond No. 1, issued Jan. 1, 1867	$709,024 65	
School-fund bond No. 2, issued Jan. 20, 1867	2,658,057 30	
School-fund bond No. 3, issued May 1, 1868	184,284 00	
School-fund bond No. 4, issued Jan. 20, 1871	177,700 00	
School-fund bond No. 5, issued May 3, 1878	175,767 07	
Five per cent. bonds, due April 1, 1901	340,000 00	
Total domestic		$4,244,733 22
Total State debt		$4,876,608 34

The Governor, in his message to the Legislature, says it is evident that unless economies can be introduced which will relieve the deficit, the rate of taxation will have to be somewhat increased, or a sufficient sum borrowed to meet the exigency. The failure of the general appropriation bill occasioned great inconvenience to two or three of the public institutions, from the fact that no law could be found under which sufficient provision could be made for them.

The total taxes for the year ending May 31, 1884, were $14,372,553.71. The total value of taxable property of all kinds was $840,481,925.

The amount of cash in the treasury Nov. 1, 1883, was $503,927.19. The receipts from all sources during the year ended Oct. 31, 1884, were $3,783,465.08. The balance in the treasury Oct. 31, 1884, was $431,206.59.

Agriculture.—The total value of all farm products for 1884, as estimated according to the current market prices, is $155,085,663.

There are 14,958,347 rods of drain-tile in operation in 1884, against 11,487,814 in 1883; and 384,372 rods of open ditches were reported constructed in 1884.

The estimated apple-crop for 1884 was 2,393,133 bushels of summer and fall, and 1,788,014 bushels of winter apples, giving a total of 4,181,147 bushels.

Mineral Statistics.—The mine and quarry product reported during the year was: 768,376 cubic feet of sandstone, 6,012,110 cubic feet o limestone, 1,244,508 bushels of lime burned, 362,014 bushels of cement made, 1,722,089 tons of coal mined, and 502,115 cubic yards of gravel sold; value of stone and coal, $2,500,000.

Manufacturing.—The following is a summary of the manufacturing statistics for the year:

Number of establishments	12,229
Capital invested	$58,041,949
Value of raw material	97,267,909
Value of manufactured product	168,851,872
Average number of hands employed	78,924
Total wages paid	$31,278,840

Railroads.—There were added during the year 189·30 miles of main track, 7·98 miles second main track, and 65·10 miles of side-track, so that the entire length of railroads now in Indiana amounts to 5,429·49 miles of main track, 68·52 miles of second main track, and 990·44 miles of side-track. The total valuation of all the railroad property in Indiana for 1884 amounts to $55,057,687, against $53,480,932 in 1883. One hundred and eighty-seven persons were killed by railroad accidents in Indiana during the year, and 617 were injured.

Educational.—The permanent fund for the support of the common schools of the State amounts now to $9,389,327.58. The increase of the fund during the year from fines, forfeitures, and other sources was $65,159.57. The accessions to the fund during the past ten years from the same sources have averaged $62,898.09 a year. The revenue derived from taxation for the support of schools and from interest on the school funds amounted during the year to $4,488,961.69. The outlay for the maintenance of schools—not including the cost of new school-houses—was about $4,000,000. The number of public-school houses in the State is 9,664. The number of children of school age, according to the last enumeration, is 722,851. The number who actually attended school during the year was 501,142.

A uniform course of study and of final examination of pupils is now pursued in all the public schools of the State. This uniformity has been adopted under a recommendation made last year by a State meeting of county superintendents, and not in pursuance of any requirement of law.

A continual improvement is being made in school architecture, including mode of heating and ventilation. The embellishment of school-grounds by the cultivation of trees and flowers, through the efforts of teachers and pupils, without expense to the State, is also becoming general.

The aggregate value of the common-school property of the State is $13,449,479, against $13,019,931 in 1883, being an increase of $429,548. During the year, 305 new school-houses were built, at a cost of $544,630. The number of teachers is 13,615.

Insane Asylums.—The cost per capita for maintenance of the insane during the last fiscal year was $177.02, against $194 during the years 1882 and 1883, and against $185 during the years 1881 and 1882. Most of this reduction is ascribed to the reduced price of provisions during 1884.

The Governor calls the attention of the Legislature to the following points:

> The experiment of the disuse of mechanical restraints in the treatment of the insane, begun a little more than a year since, has proved satisfactory, and it is deemed to have been demonstrated that a hospital for the insane can be managed without confining the inmates in cribs or tying them to stationary objects, or using other of the milder mechanical restraints which, until lately, have been usual in American hospitals.
>
> The extensive new building constituting a part of the hospital, designed exclusively for women, was completed on June 2, 1884.
>
> By the act passed at the last session of the General Assembly, providing for the building of three additional hospitals for the insane, the Governor was required to appoint four commissioners. The commissioners selected the sites for the institutions, and advertised for bids. For building the hospital near Evansville, the lowest bid was $286,585.20; for building the hospital near Richmond, the lowest bid was $269,760.93; for building the hospital near Logansport, the lowest bid was $362,802.29. These bids were accepted, but not until provision had been made for considerable reduction of expense to the State, by simplifying the style of architecture, and contracts were entered into accordingly. To reconcile a difference of views among the commissioners, the cottage plan of buildings was adopted at Richmond; a system of detached buildings connected by covered corridors was adopted for the hospital near Logansport; and the congregate plan of building was adopted for the hospital near Evansville. The foundations of the several buildings have been completed.

State Prisons.—The average number of prisoners at the State Prison North during the fiscal year was 547. At the State Prison South the average number was 570. The receipts of the Northern Prison from the labor of prisoners exceeded by $7,202.71 the outlay for current expenses. The receipts from the labor of prisoners at the Southern Prison did not equal the outlay for these expenses. The deficiency in the receipts of the latter prison is ascribed to the inferior quality of the buildings used for manufacturing purposes, the want of land for raising garden products, and other disadvantages. In the State Prison South the use of the lash for the correction of prisoners has ceased. The reports of both prisons urge that a better provision shall be made for insane convicts.

Reform School for Boys.—The average number of boys in the Reform School during the year was 395. The superintendent says in his report that "the health of the boys has never been better, the work of reformation has never been more thoroughly done, and the industrial features of the school have never been more satisfactory."

Reformatory Institution for Women and Girls.—This institution, exclusively under the management of women, continues to be conducted in a most satisfactory manner. The average number of inmates in both departments during the year was 186. The number of thorough reformations that have been effected by this institution is encouraging.

Social Statistics.—The total number of church organizations, of all denominations, in the State is 4,180, with 3,783 church edifices, and a total membership of 453,888. Number admitted to full membership during the year, 37,413. Total value of church buildings, lots, and other church property estimated at $11,680,661; salary paid ministers during the year, $1,120,706; other church expenses, $362,691; missionary and other charitable contributions, $241,803; number of Sunday-school teachers, 24,401, and number of pupils attending Sunday-school, 243,193. Number of pianos reported in the State for 1884, 10,597; number of organs, 24,115; number of sewing-machines, 149,533.

The Circuit Clerks of 68 counties reported 1,237 divorces, of which number 782 were granted to the wife and 314 to the husband. Naturalizations were reported from 64 counties, showing a total of 1,310 persons naturalized during the year.

There were 3,473 inmates of county asylums reported for 1884, 1,847 males and 1,626 females; 2,783 were over sixteen years of age, and 692 under sixteen years. Of the total number, 94 were blind, 39 deaf and dumb, 649 insane, 869 idiots, 245 crippled, 390 aged, 349 were sent to asylums for medical treatment, and 344 died during the year.

Vital Statistics.—The total number of births for the year ending Sept. 30, 1884, was 40,153, viz., 39,385 white and 768 colored; 448 of the whole number were plurality births, and 573 illegitimate. The total number of marriages was 18,762, the highest number occurring in September and October, and the lowest in June and July. The total number of deaths during the year was 15,368, of which number 7,875 were males, and 7,493 females.

Political.—The Democratic State Convention met in Indianapolis on June 25, selected delegates to the National Convention of the party, and nominated Presidential Electors and the following State ticket:

For Governor, Isaac P. Gray; Lieutenant-Governor, Mahlon D. Manson; Secretary of State, William R. Myers; Auditor, James H. Rice; Treasurer, John J. Cooper; Attorney-General, Francis T. Hord; Superintendent of Public Instruction, John W. Holcombe; Judge of Supreme Court, Fifth District, J. A. S. Mitchell; Reporter Supreme Court, John W. Kern.

The Republican candidates were:

For Governor, William H. Calkins; Lieutenant-Governor, Eugene H. Bundy; Secretary of State, Robert Mitchell; Treasurer, Roger R. Shiel; Auditor, Bruce Carr; Attorney-General, William C. Wilson; Superintendent of Public Instruction, B. C. Hobbs; Judge of Supreme Court, E. O. Hammond; Supreme Court Reporter, William M. Hoggatt.

For Governor, the Greenbackers nominated Hiram Z. Leonard, and the Prohibitionists Robert S. Dwiggins. The Democratic ticket was elected on November 4. The following was the vote for Governor: Democratic, 245,140; Republican, 237,748; Greenback, 8,338; Prohibition, 3,868. Republicans were elected to Congress in the Sixth, Eighth, Tenth, and Eleventh districts, Democrats in the other nine. The Legislature of 1885 consists of 33 Democrats and 17 Republicans in the Senate, and 65 Democrats and 35 Republicans in the House. The vote for Presidential Electors was as follows: Democratic, 244,990; Republican, 238,463; Greenback, 8,293; Prohibition, 3,028.

IOWA. State Government.—The following were the State officers during the year: Governor, Buren R. Sherman, Republican; Lieutenant-Governor, O. H. Manning; Secretary of State, John A. T. Hull; Treasurer, E. H. Conger; Auditor, John L. Brown; Attorney-General, Smith McPherson; Superintendent of Public Instruction, John W. Akers; Railroad Commissioners, Peter A. Dey, L. S. Coffin, and A. R. Anderson, succeeded by J. W. McDill. Judiciary, Supreme Court: Chief-Justice, James H. Rothrock; Associate Justices, Joseph R. Reed, Joseph M. Beck, Austin Adams, and William H. Seevers.

Legislative Session.—The Legislature met on January 14, and adjourned on April 2. On January 22, William B. Allison, Republican, was re-elected United States Senator.

The following are the principal acts and joint resolutions passed by this General Assembly:

To repeal section 1555 of the Code and to enact a substitute therefor, in relation to intoxicating liquors. This is known as the Kennedy bill.

To amend section 1, chapter 104, laws of the Seventeenth General Assembly, relating to mutual insurance companies.

Increasing the number of Circuit Judges in the Second Judicial District.

To protect and preserve the fish in the permanent lakes and ponds within the State.

To regulate mines and mining, and to repeal chapter 202 of the acts of the Eighteenth General Assembly.

To exempt from judicial sale the pension money paid to any person by the United States Government, and certain of the proceeds and accumulation thereof.

To provide for the erection of and maintenance of station-houses and connections at the points of intersection or crossing of two or more railroads.

To repeal section 1621 of the Code and to enact a substitute, relating to a course of study for the State Agricultural College.

To provide for the assessment and taxation of lands granted to railroad companies or corporations which have become earned but not patented.

To amend section 1384 of the Code in relation to the care of the insane.

In relation to the protection of game.

To provide for the levy of one half mill additional State tax.

To provide for selling, leasing, and patenting the lands belonging to the Iowa State Agricultural College and farm.

To prohibit giving or selling fire-arms to minors.

To amend chapter 147, laws of the Nineteenth General Assembly, relating to the bonding of county indebtedness.

To prohibit the use of barb-wire in inclosing public grounds.

To protect all citizens in their civil and legal rights.

To provide for the distribution of funds by the assignees of insolvents.

To amend section 2578 of the Code in relation to the foreclosure of liens on real estate.

To prevent the spread of small-pox.

Authorizing actions against railroad companies to be brought in the name of the State on recommendation of the Board of Railway Commissioners.

Providing additional penalties for the violation of the law relating to the sale of intoxicating liquors.

Authorizing the condemnation of grounds for union depots, and authorizing the organization of companies for the construction of such depots.

Prohibiting the killing of quail for two years.

Providing for the refunding of bonded indebtedness of counties, at not more than 6 per cent.

Requiring trains to stop before reaching the crossing of other tracks.

To create a Bureau of Labor Statistics, and providing for the appointment of a commissioner of the same at a salary of $1,500 per annum.

Providing for the semi-annual collection of taxes.

Amending sections 2086 and 2087 of the Code relating to defenses on non-negotiable paper.

Raising the standard for admission to the bar.

Permitting townships that have voted tax in aid of the construction of railroads to vote an additional five mills for the same purpose.

Providing for the inspection of coal-oil and the appointment of a State Inspector.

Providing a system of drainage and for the reclaiming of swamp and overflow lands.

Establishing an additional Insane Hospital in southwestern Iowa, and appropriating $150,000 therefor.

Appropriating $50,000 for land for the State Agricultural Society for a permanent location.

Appropriating $369,500 for completing the new Capitol and improving the surrounding streets.

Agreeing to amendments to the Constitution proposed by the Nineteenth General Assembly.

The following are the amendments: 1. The general election for State, district, county, and township officers shall be held on the Tuesday next after the first Monday in November.

2. At any regular session of the General Assembly the State may be divided into the necessary judicial districts for District Court purposes, or the said districts may be reorganized, and the number of the districts and the judges of said courts increased or diminished; but no reorganization of the districts or diminution of the judges shall have the effect of removing a judge from office.

3. The grand jury may consist of any number of members, not less than five nor more than fifteen, or the General Assembly may provide for holding persons to answer for any criminal offense without the intervention of a grand jury.

4. That section 13 of Article V of the Constitution be stricken therefrom, and the following adopted as such section:

SECTION 13. The qualified electors of each county shall at the general election in the year 1886 and every two years thereafter elect a county attorney, who shall be a resident of the county for which he is elected, and who shall hold his office for two years, and until his successor shall have been elected and qualified.

The woman-suffrage amendment passed the Senate by a vote of 26 to 24, but was lost in the House, on a motion to postpone indefinitely, by a vote of 50 to 44.

Prohibition.—The prohibitory law passed at this session took effect on the 4th of July. The following is its language:

SEC. 1. That section 1555, chapter 6, title 11 of the Code be and the same is hereby repealed, and the following is enacted in lieu thereof:

SEC. 1555. Wherever the words intoxicating liquors occur in this chapter the same shall be construed to mean alcohol, ale, wine, beer, spirituous, vinous, and malt liquors, and all intoxicating liquors whatever, and no person shall manufacture for sale, or sell, or keep for sale as a beverage any intoxicating liquors whatever, including ale, wine, and beer; and the same provisions and penalties of law in force relating to intoxicating liquors shall in like manner be held and construed to apply to violations of this act, and the manufacture, sale, or keeping for sale, or keeping with intent to sell, or keeping or establishing a place for the sale of ale, wine, and beer, and all other intoxicating liquors whatever.

It passed the Senate by a vote of 35 to 13, four Republicans voting against it and one Democrat for it, and the House by a vote of 52 to 41, one Democrat voting for it.

A State Temperance Convention met in Des Moines on January 28, and passed, among others, the following resolutions:

That we fully trust and confidently expect that our present Legislature will promptly meet the wishes of the people in not only repealing the statute permitting the sale of ale, wine, and beer as beverages, but enact and provide suitable penalties to enforce the law so that the citizens in any part of the State can effectually close up and put a stop to all traffic in intoxicating beverages of whatever name or nature, whether sold or given away in a saloon, hotel, club-room, drug-store, private house, or any other place or in any manner.

That however wise, judicious, and stringent prohibitory laws our General Assembly may pass (and pass such it unavoidably will), it still will remain as much the *imperative* duty of the friends of temperance to keep up their several organizations for the purpose of seeing that such laws shall be executed and enforced, as it was for them to create the public sentiment that brought these laws into being, and upon the practical carrying out of this purpose depends largely the success of the prohibition movement in our State.

On February 8, the Women's Christian Temperance Union presented a memorial to the Legislature in favor of a prohibitory law.

Financial Statistics.—The taxes levied for the year 1881 amounted to $11,183,576.21, viz.: State tax, $841,195.44; county and county poll-tax, $2,230,463.92; insane-tax, $239,071.60; bridge-tax, $970,238.07; county school tax, $425,431.02; district school tax, $4,114,647.34; road-tax, $486,454.86; special tax, $805,521.05; judgment and bond tax, $329,049.89; corporation-tax, $741,563.51. The total of taxes for 1882 was $12,201,493.69. The length and assessed value of railroads Jan. 1, 1883, were: Length, 6,792 miles; value, $28,832,789.70.

The following statement shows the number of live-stock, and the assessed value, for seven years:

YEAR.	Number of cattle.	Value of cattle.	Number of horses.	Value of horses.	Number of mules.	Value of mules.	Number of sheep.	Value of sheep.	Number of swine over six months.	Value of swine.	Total value for each year.
1877....	1,452,546	$14,898,811	659,885	$20,100,268	42,867	$1,670,154	818,489	$345,827	1,654,708	$3,899,301	$40,914,366
1878....	1,461,156	14,757,563	678,790	20,829,705	44,489	1,634,913	288,228	290,520	2,250,800	4,404,750	41,417,451
1879....	1,523,109	15,589,508	673,055	19,671,807	42,662	1,583,199	301,752	330,945	2,818,220	3,475,223	40,650,683
1880....	1,757,688	18,426,852	691,805	20,290,490	43,182	1,581,836	349,859	457,967	2,460,898	4,727,642	45,484,287
1881....	1,962,992	20,650,855	706,646	21,058,880	43,684	1,596,878	436,531	546,998	2,219,402	4,479,860	45,872,911
1882....	2,106,852	21,996,899	742,821	22,658,468	45,867	1,719,661	483,407	562,712	2,069,547	4,218,187	51,145,873
1883....	2,157,745	22,882,204	779,667	23,594,601	45,838	1,702,182	401,429	479,287	1,895,044	4,074,265	52,782,489

Insane Hospitals.—The report from the Insane Hospitals for the quarter ending Sept. 30, 1884, shows at Independence 667 inmates, and at Mount Pleasant 599. The cost of supporting them for the quarter was, at Independence, $24,816.24; at Mount Pleasant, $18,780.91, or a total of $53,597.12. Every county in the state is represented. Dubuque furnishes the largest number, 46. July 30, 1883, there were 580 inmates at Independence, and at Mount Pleasant 472. The increase since that period is 214. Both institutions are overcrowded, yet this does not include the entire insane population of the State; for, a few years ago, so overcrowded became the hospitals, that thousands of incurables were removed to county hospitals and poor-houses.

Election.—On the 4th of November the Republican ticket was successful. The following is the vote for presidential electors: Republican, 197,089; Fusion (Democratic and Greenback), 177,316; Prohibition, 1,472. For Secretary of State, the vote was: Frank D. Jackson, Republican, 198,001; James Dooley, Democrat, 179,219; scattering, 283.

The vote on the constitutional amendments was as follows:

AMENDMENTS.	For.	Against.
First	89,342	14,940
Second	64,960	83,860
Third	72,591	80,343
Fourth	67,621	82,902

The Fusionists elected Congressmen in the First, Second, Fifth, and Sixth Districts, and the Republicans in the other seven.

New Capitol.—The new Capitol was dedicated January 17. The following are details of the structure:

Length, north and south, including porticoes, 363·8 feet; length, east and west, 246·11; length, north and south fronts, 175; length, east and west fronts, 118·8; height to top of cornice, 92·8; height of top of stonework on dome, 171·4; height of top of outside stone balcony, 219·1; height to top of ball of main dome, 295·5; height of basement story, floor to floor, 18·1; height of office story, floor to floor, 23·9; height of second story, floor to floor, 22·9; height of third story, floor to ceiling, 20·9; square feet of ground covered, 54,850; above the level of the sea, 1,151; house, floor, 74 × 91·4; height, 47·9; library, floor, 52·6 × 108·4; height, 44·9; Supreme Court room, floor, 34·5 × 50·2, height, 23·9; diameter of rotunda, 66·8. Foundation granite hewed from Iowa bowlders; yellow-stone came from St. Genevieve, Missouri; gray-stone came from Carroll county, Missouri. Total cost to October 1, $2,362,531.60; height to top of finial, 275 feet.

ITALY, a kingdom of southern Europe. (For details relating to area, population, etc., see "Annual Cyclopædia" for 1883.)

Government.—The King, Humbert I, born March 14, 1844, the eldest son of Victor Emanuel, succeeded to the throne Jan. 9, 1878. During the cholera season of 1884 he distinguished himself by visits to the infected cities, and personal inspection of the hospitals and means of relief. The ministry is: President of the Council, Signor Depretis; Interior, Signor Morana; Finance, Signor Magliani; Justice and Ecclesiastical Affairs, Signor Gianuzzi-Savelli; Foreign Affairs, Signor Mancini; War, Signor Ricotti, since Oct. 24, 1884; Navy, Admiral Racchio; Public Works, Signor Gelana; Agriculture, Industry, and Commerce, Signor Grimaldi; Public Instruction, Signor Baccelli.

The United States Minister in Rome is William W. Astor, and the Italian Minister at Washington, Baron S. de Fava. The Italian Consul-General at New York, G. B. Raffo.

Finances.—At the close of the fiscal year, ended June 30, 1884, Italy owed 11,000,000,000 lire, 2,000,000,000 of which represented the floating debt, not paying interest; there were therefore 9,000,000,000 consols, on which the annual interest amounts to 442,312,977 lire; 435,904,897 thereof at 5 per cent. interest, and 6,408,080 at 3 per cent.; and there was, besides, the 5 per cent. interest on the debt due to the Holy See, which interest amounts to 3,225,000 lire. The budget for the fiscal year 1883, which estimated an income of 1,310,000,000 lire, is shown to have produced in reality an income of 1,334,000,000, or 24,000,000 more, while the expenditure was 1,333,000,000, instead of the estimated 1,-

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HUMBERT Ist

KING of ITALY.

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308,000,000. The budget for 1884 was as follows:

REVENUE.	Lire.
Revenues of the Government	24,304,705
Direct taxes	389,474,330
Dues and stamp-tax	182,550,000
Customs, liquors, tobacco, and salt	524,224,245
Lottery	72,502,000
Post-Office, telegraphs, and railroads	123,350,185
Sundries	25,311,258
Rents and interests	220,758,342
Total	1,562,975,065

EXPENDITURE.	Lire.
Treasury	736,465,978
Finance	174,916,298
Justice	33,451,637
Foreign Affairs	7,213,737
Public Instruction	32,427,541
Interior	64,060,550
Public Works	184,659,068
War	252,867,367
Navy	57,645,549
Agriculture	11,966,104
Total	1,555,676,829

There were outstanding, Sept. 30, 1884, 255,344,600 lire in treasury notes, the circulation being greater by 10,936,500 than on June 30 of the same year.

The Government having resumed the tobacco monopoly from the Tobacco Régie Company, and having to pay it 68,000,000 lire for tobacco, etc., a loan was made at 3·60 per cent., payment to be made on April 1, 1885, instead of on Dec. 31, 1885, a saving of 1·40 per cent., as the Tobacco Régie Company was being credited interest at the rate of 5 per cent. per annum. A 100,000,000 lire loan having been voted by the Chamber in December, 1884, and the bill also having passed the Senate on Jan. 11, 1885, for the sanitary improvement of Naples, and certain public works to be there undertaken for the same purpose, it was proposed to place on the market 5 per cent. bonds, to run sixty years, dating from January, 1886, and to be gradually paid off by a sinking fund.

During the first ten months of 1884, the movement of the precious metals in lire was as follows:

	Imports.	Exports.
	Lire.	Lire.
Gold bullion	3,515,200	134,200
Gold coin	14,339,700	8,757,500
Total	18,854,900	8,891,700
Silver bullion	983,780	5,023,305
Silver coin	8,927,000	7,776,600
Total	21,910,780	12,799,905
Grand total	40,265,680	21,691,605

Agricultural Credit Reform.—A bill was introduced in the Italian Parliament, toward the close of 1884, abrogating the law of June 21, 1869, and remodeling the basis on which money may be loaned by agricultural credit banks to farmers. Under the old law, the proprietor of the soil enjoyed superior privileges as a mortgage holder, if his tenant stood in need of money. The new law concedes first mortgage to the proprietor on the land and crops, but not on the cattle on which the credit-bank is to have secured a first mortgage. The loans will have to be made for at least three years, but not to exceed thirty years, nor the interest 5 per cent.

Army.—The standing army numbers 750,765 men and officers; the militia mobile, 341,250 men and officers; the reserve, 5,281, and the territorial militia, 1,021,954—constituting a joint force, in time of peace, of 2,119,250 men. In time of war Italy can place in the field 690,000 men of the line; 300,000 militia mobile, and 1,000,000 territorial militia—together, 1,990,000 soldiers.

Navy.—There were launched in August, at Castellamare, the ironclad Ruggiero di Lauria, and in December the ironclad Francesco Morosini; to be followed in March, 1885, by the Andrea Doria — three line-of-battle steamers of the first class, built after the Acton model; and there were building in the spring of 1885 the Italia and the Lepanto. When these formidable men-of-war are all afloat, Italy will have 15 vessels of the first class, 10 of them ironclad; 14 second class; 13 third class; 11 transports, and 43 torpedoes. The Ruggiero di Lauria cost, with armament, 19,000,000 lire or francs; the Duilio as much; and the Lepanto, the Italia, and the Dandolo, when armed, will cost between 22,000,000 and 24,000,000 each. The Duilio is to carry four 100-ton guns. Out of the 10,302 sailors and marines, and 567 officers, by whom the Italian navy is manned, there will be doing active service on board ship in 1885, 396 officers and 9,028 men, a proportion unknown in any other navy. A novel arrangement is the having in readiness so-called "reserve ships," to sail at forty-eight hours' notice. The navy was commanded and officered on Jan. 1, 1885, as follows: one admiral, Prince Carignano; 4 vice-admirals, 10 rear-admirals, 104 captains, and 362 lieutenants; 10,300 sailors, and 1,987 gunners, men for torpedo service, and engineers.

The Red Sea Expedition.—For several years there has been rivalry between the Italians, French, and Egyptians, to secure the trade between their possessions on the Red Sea coast of eastern Africa, and Abyssinia and the Galla countries. The Italians have acquired a settlement at Assab, and the French farther south at Abok. Both settlements are poor, the coast being a complete desert, while the flourishing countries inland, especially Shoa, are difficult and expensive to reach, the freight on camels' backs being very high, and transportation, a distance of 400 miles, very slow, so that it sometimes takes months to reach a market from Assab. Valueless as the latter is as a settlement, it has, nevertheless, been retained, because during the colonization mania that has seized upon the French and Germans, Italy, without any other colony, considers it in her political rather than commercial interest to obtain a firm foothold somewhere near the

Mediterranean. The fall of Khartoum, in the winter of 1884–'85 determined Italy to follow up the new expedition to Massowah, Beilul, and Assab, which left Naples on Jan. 14, 1885, and in quick succession two additional expeditions were sent, raising the number of Italian troops on the Red Sea coast, between Massowah and Assab, to 3,500 men. From the statements made before the Italian Chamber of Deputies, by Minister Mancini, it appeared that there was no special secret treaty between Italy and England, in accordance with which the former was to lend its military aid to the latter during the operations in the Soudan, but merely a spontaneous "parallel action," as it was termed, interests in the locality being more or less identical.

The German Steamers.—If there be anything calculated to forcibly demonstrate the desirability of seeing either the Panama or Nicaragua Canal, or both, soon dug, it is the question which has arisen as to whether the future subsidized German steamers for Australia are to have their starting-point from Genoa or Trieste. The shortest route had to be selected, and, complying with the wishes of South German Chambers of Commerce, the choice was left between two non-German ports, Genoa and Trieste. Since the St. Gothard and Arlberg Tunnels have been in operation, the importance of Genoa and Trieste has become so striking, that a new current of commerce to countries in the extreme East is setting in in that direction from central Europe.

Railroads.—On the 23d of April, 1884, the Italian Government made a contract with two syndicates for the leasing, for a term of sixty years, dating from 1885, of its three great systems of railroads, and on October 31 certain modifications were made, the whole subject to such amendments as the Chamber of Deputies might deem necessary. The bill in this modified form was introduced immediately, and finally passed before the month of January came to a close. The two new companies rent the lines named from the Government, and purchase the rolling-stock and other material; they also agree to complete the systems. Out of the gross earnings the companies are to receive 60 per cent. for operating the lines, and 10 per cent. for repairs, etc., and interest, the remainder to accrue to the Government, after the shareholders receive at least 5 per cent. net. The three railroad systems on Jan. 1, 1884, were:

LINES.	In operation.	Building.
	Kilometres.	Kilometres.
Mediterranean system..........	4,106	1,966
Adriatic system.................	3,982	1,881
Sicilian system............	1,132	.....
Total......................	9,220	3,849

During 1882, when 9,042 kilometres were in operation, the gross earnings amounted to 192,938,929 lire, and on December 31 of the same year the aggregate amount spent on the entire system, as it then stood in operation, had been 2,787,021,700 lire. The Upper Italian Railroad, having 3,929 kilometres in operation on Dec. 31, 1884, against 3,778 on December 31 of the previous year, had earned gross during the year 124,282,726 lire, against 122,953,148 in 1883; the product per kilometre was, therefore, 32,163 lire, against 32,841 in 1883, showing a decrease of a little over 2 per cent.

Telegraphs.—The length of telegraph lines, at the end of 1882, was 27,618 kilometres; of wire, 93,799 kilometres. The number of dispatches was 6,454,942. The number of private domestic dispatches was 5,190,909, against 5,015,005 in 1881; of private foreign messages 521,180, against 517,599. The receipts were 12,423,102 lire; expenses for service, 7,974,932 lire; for maintenance, 186,765 lire; extraordinary expenditure, 457,000 lire.

Telephones.—On Nov. 30, 1884, a new telephone company was formed in Rome, with Prince P. Borghese as its president, with a capital of 1,500,000 lire, for the consolidation of all the lines then existing in the Italian capital, and developing the use of electricity therefor, and other public purposes.

Postal Service.—There were in Italy in 1882 3,497 post-offices. The number of letters and postal-cards that passed through the post-office in that year was 177,034,688, and of newspapers 160,726,706, while money-orders were issued to the amount of 532,630,867 lire, there having been delivered of such altogether 4,102,253. The amount of postage, etc., collected was 32,660,886 lire, the expenses summing up 27,729,462 lire.

Packages up to five kilogrammes are now forwarded between Italy and Germany *via* Switzerland, at the rate of sixteen cents a package as far as the frontier, from where the express charge by mail, at postal-union rates, is added. In 1882 Italy was the nation seventh in rank in point of postage collected.

Wine and Olives.—While the Italian vintage of 1884 only produced 14,086,200 hectolitres of wine, the average being 27,538,000 hectolitres; the olive-crop, on the other hand, was very abundant, with the sole exception of the Bari region, where the oil-worm did some damage. As for the quality of Italian wines of 1884, 11 per cent. proved unexceptionable, 35 per cent. good, 30 per cent. medium, and 24 percent. bad.

Iron and Steel.—Iron-ore abounds in various parts of Italy, especially in Elba and Sardinia, whence it is exported; but iron-works, during the past twenty years, have rather decreased. The Ligurian Iron-Works, being near the coast, form an exception, and produce about 35,000 tons annually.

In the Aosta valley the firm of Mongenet, of Turin, have blast-furnaces; and in January, 1885, Martin Siemens's steel manufacture was to be begun. The works will be built under the supervision of the French engineer, Ch. Walrandt, who has lately performed such service in Germany, France, and Russia.

Emigration.—The number of persons that left for countries in Europe in 1883 was 98,665, against 93,930 in 1882. Most of these are field-laborers who cross the frontier for two months, during harvest-time, in France, Austria, and Switzerland, and then return. In the same year there left for Northern Africa 6,128, against 7,778 the previous year; for the United States and Canada, 21,337, against 18,669; for La Plata, 26,075, against 24,526; and for other American countries, 15,976, against 16,500; together, 63,388, against 59,695; for South Africa, Asia, and Oceania, 925, against 164.

Silk.—The Government issued in September a decree allowing the temporary admission for mixed silk manufacture for export of high numbers of twist. At Como, 2,000 looms manufacture such goods; at Milan, 1,500; and it was estimated that this measure would save for each loom seventeen lire per annum. Without this privilege it would have been difficult to compete with Lyons, where temporary admission has been introduced for a similar purpose.

The silk-crop of 1884 was notably smaller than its immediate successor, as the ensuing statement shows:

COCOONS PRODUCED.

	Yellow.	Domestic Green.	Green from foreign eggs.	Total.
	Kilos.	Kilos.	Kilos.	Kilos.
1880	11,190,363	14,074,405	16,409,341	41,674,109
1881	11,236,790	10,315,885	18,284,986	39,837,661
1882	11,006,856	6,880,702	14,000,468	31,888,026
1883	17,892,259	5,987,711	18,341,069	42,221,039
1884	17,453,859	4,412,275	14,950,831	36,816,965
Average.	13,656,025	8,334,196	16,497,339	38,487,560

SILK-EGGS CULTIVATED.

	Yellow.	Domestic Green.	Foreign green eggs.	Total.
	Ounces.	Ounces.	Ounces.	Ounces.
1880	370,123	637,447	711,320	1,719,890
1881	422,218	449,833	720,860	1,592,911
1882	430,370	337,212	576,077	1,343,659
1883	552,437	233,429	670,371	1,456,137
1884	628,890	191,604	604,101	1,424,595
Average.	480,808	369,905	656,626	1,507,339

COCOONS, WHERE PRODUCED.

REGIONS.	Yellow.	Domestic Green.	Foreign Green.	Total.
	Kilos.	Kilos.	Kilos.	Kilos.
Piedmont	2,310,799	1,520,463	804,926	4,636,188
Lombardy	5,125,357	1,485,848	8,995,501	15,606,706
Venetian territory	1,880 867	629,065	4,378,078	6,888,010
Liguria	131,614	34,469	45,056	211,139
Emilia	2,803,429	83.500	77,670	2,964,599
Marches and Umbria	1,910,031	3,956	6,370	1.920,357
Tuscany	1,606,571	21,764	34,908	1,663,243
Romagna	66,586	736	5 258	72,580
Abruzzo and Apulia	87,989	2.455	4,604	95,048
Naples and Calabria	1,271,551	493,149	541,211	2,305,911
Sicily	257,812	136,820	56,987	451,619
Sardinia	1,253	50	262	1,565
Total	17,453,859	4,412,275	14,950,831	36,816,965

Commerce.—The amount of exports and imports for two years, in millions of lire, is shown in the following table:

	Imports.		Exports.	
	1882.	1883.	1882.	1883.
Breadstuffs	81·8	68·1	77·1	108·3
Beverages	8·6	12·6	48·0	82·2
Groceries	78·6	79·6	4·2	12·0
Tobacco	25·8	11·6	....	....
Fruit, seeds, and herbs.	17·6	14·4	61·3	52·0
Live animals	75·9	99·1	114·2	63·6
Total articles of food.	288·3	285·4	304·8	328·1
Coal and wood for fuel.	64·4	72·1	6·7	5·8
Stone	11·6	13·6	63·3	39·7
Metals	83·2	70·3	2·4	0·6
Hides, skins, and hair	52·1	55·1	15·9	19·0
Textiles	190·4	175·6	356·2	351·5
Wood for manufactures.	32·0	34·7	12·4	11·7
Total raw materal	433·7	481·4	461·9	428·3
Stone and glass ware	12·8	2·6	9·5	7·2
Metal manufactures	18·9	18·2	8·0	0·3
Machines and carriages.	41·7	51·3	1·2	2·5
Leather-ware	1·2	0·1	4·3	3·7
Twist and other yarns	54·5	46·8	14·5	4·4
Dry-goods	160·8	155·3	28·9	21·4
Sundry manufactures	31·0	19·9	40·1	31·1
Paper	8·8	6·0	10·0	5·5
Wooden-ware	9·8	0·7	10·1	4·2
Jewelry, etc.	7·8	24·3	87·4	74·7
Total manufactures	342·3	320·2	204·5	155·0
Drugs, dyes, and resins.	159·2	259·3	178·3	274·0
Bullion and specie	122·0	94·1	6·3	18·3
Total	1,845·5	1,890·9	1,155·8	1,198·7

The movement was distributed as follows, in millions of lire:

FROM AND TO	Imports.		Exports.	
	1882.	1883.	1882.	1883.
France	418·1	366·6	461·8	505·9
England	297·2	297·6	92·5	92·6
Austria-Hungary	190·8	207·2	146·7	137·3
Switzerland	46·2	64·9	129·9	124·4
Russia	31·5	36·8	22·5	22·6
United States & Canada	69·0	58·5	61·5	59·1
Germany	84·5	118·9	78·1	88·6
South America	36·4	27·7	32·8	29·3
Turkey, Servia, and Roumania	33·0	28·1	13·8	16·3
Other countries	139·2	178·9	121·2	123·6
Total	1,345·4	1,380·2	1,155·8	1,200·2

The American trade with Italy shows a remarkable change in both directions in a single twelvemonth:

FISCAL YEAR.	Imports from Italy into the United States.	Domestic exports from the United States to Italy.
1883	$11.909,658	$10,114,548
1884	16,706,084	7,568,408

Merchant Marine.—The Italian commercial marine, on Jan. 1, 1882 and 1883, was composed as follows:

	1882.		1883.	
	Number.	Tonnage.	Number.	Tonnage.
Sailing-vessels.	7,528	885,285	7,270	865.881
Steamers	192	104,719	201	107,452
Total	7,720	990,004	7,471	973,333

Events of 1884.—Cholera made its first serious appearance in the provinces of Massacarrara, Parma, Porto Maurizio, and Turin on August 16, soon spread with great rapidity to other provinces, and reached its climax of virulence at Naples in September, disappearing again from Italy on Nov. 3. (See CHOLERA.)

The Pope displayed, during the year, extraordinary zeal in mitigating, by means of donations, the visitations of cholera and earthquakes. The Pope has taken great interest in missionary matters in China, near the seat of war and elsewhere.

The Turin Exhibition was international so far as applied electricity was concerned. At the same time, opening on October 20, a so-called "Phylloxera Congress" was held. Both were well attended, in spite of the cholera. On November 4, the distribution of premiums took place, the King and royal family being present, and 6,000 prizes being awarded to 13,000 exhibitors. The exhibition terminated on November 15. Previously a great banquet, to which 200 guests had been invited, was given by the Minister of Agriculture, Signor Grimaldi, to the members of the Phylloxera Congress.

There had been a standing complaint on the part of Italy that a well-organized smuggling of cigars was going on for a long time past, from Italian Switzerland into Italy, across the frontier, and during the cholera quarantine, Italy found that the extra expense of greater vigilance exercised, had the effect of greatly increasing the revenue in that quarter, the difference more than covering the expense of guarding the frontier at those points. Remonstrances were accordingly made, but it took considerable time ere the Swiss Government could be made to agree to a stringent customs convention like the one existing between Austria and Italy.

On October 7, a violent cyclone swept Catania, in Sicily, killing thirty people and wounding five hundred, besides destroying property to the amount of 5,000,000 lire, and between Jan. 21 and 23, 1885, destructive avalanches surprised the population of Cuneo, Ivrea, Susa, Brossasco, Sparone, Moasca, Exilles, and Frassinere, in the Piedmontese Alps, burying many people, eighty-seven of whom perished. The usual floods also occurred in the spring of 1884. Shocks of earthquake were felt at Rome, Frascati, and Albano on August 7, and at Cosenza and Rossano on August 19.

The disturbed commercial condition created by the cholera epidemic interfering with trade, was the cause of heavy failures in Milan and Genoa, where a severe crisis set in with the failure at Milan of the Fabbrica Lombarda, on August 20, the suspension of Paganini & Villani in the same city, and of the great shipowning firm of Andrea Danovaro at Genoa early in September, followed in January by the failure of Lorenzo Cotta-Ramusino, of Mortara, Pareia.

J

JAPAN. The empire of Dai Nippon (great sunrise), called by the Romance nations Japon, and by the Teutonic Japan, stretches through 27 degrees of north latitude, and 33½ of longitude. It consists of a chain of volcanic islands nearly 2,000 miles long, its area equaling that of the British Islands, Holland, and Belgium. The best known part, or Japan proper, consisting of Hondo (main island), Kiushiu, Shikoku, and Yezo, comprises three fourths of the total area. The three outlying groups or fringes are Riu Kiu (hanging tassels), Chijima (thousand islands), and Ogasawara, or Bonin Shima (no man's land). The area of the empire is 146,571·77 square miles, of which Hondo has 58·9, Kiushiu 9·4, Shikoku 4·7, Yezo 20·6, and the remaining islands 6·4 percentage of the whole. Old Japan, the Oyashima of ancient history, consists of Hondo, Kiushiu, and Shikoku, with their neighboring islands, all of which were conquered and colonized by the Japanese in very early times. New Japan consists of acquisitions of the last few centuries, or of very recent times, which have so far occupied a different political position, and are to be regarded as colonies of the mother-country. The area of the former is 109,735·48, and of the latter 36,836·29 square miles. A careful survey of the empire on scientific principles is now being carried on. The population, by census of 1874, was 33,623,323, of which Old Japan had 33,312,162 and New Japan 311,211; Hondo had 25,478,334, Kiushiu 4,986,618, Shikoku 2,284,538, Yezo 144,069, Riu Kiu 167,078, Bonin 69, and the smaller islands of Old Japan 362,177. The foreign residents numbered, in 1883, 2,382 Americans and Europeans, and 4,133 Chinese. The present year, in Japanese reckoning, is the 17th of Meiji (Enlightened Peace), or the 2,544th from the foundation of the empire of Japan by Jimmu Tenno. The government since 1868 has been that of the ancient system in vogue from the seventh to the twelfth century, before the establishment of the military usurpation by the Sho-gun (or later Tycoon), modified by the adoption of features from European governments. The Mikado, the 123d ruler of the line, officially styled Tenno (divine ruler), is aided by a Supreme Council of State, a Council of Ministers, each of whom is head of a department, and a Senate. The cities and prefectures are ruled by the Council of State.

Since the Restoration of 1868, the drift of affairs has been toward a constitutional monarchy. The establishment of a Senate in 1875, and of local or prefectural assemblies in 1878, was followed by the imperial decree of Oct. 12, 1881, promising the establishment of a national Parliament, with limitation of the imperial prerogative, in 1890. On the 6th of June, 1884, the Mikado's rescript, creating five orders of nobility, was issued, with a view to have ready the material for an Upper House of Lords or Notables. Article II declares that "the peerage shall consist of princes, marquises, counts, viscounts, and barons." The nobles are created according to the age and standing of their family, and in accordance with their services to the country. After the restoration of the Mikado to his ancient powers, the abolition of the feudal system, and the retirement of the daimios, or territorial nobles, to private life, with one tenth of their former revenues, and the commutation of the life and hereditary pensions of the samurai or feudal retainers, the three classes of society regulated by law were nobles, gentry, and commons. In the new five noble orders are to be many of the able men of humble birth who have achieved distinction, while at the same time the hereditary Emperor will be surrounded with the bulwark of an hereditary aristocracy. In this way the old houses are recognized, and those who have rendered meritorious services are rewarded. Among the latter are a number of military and civil officers.

The Japanese Minister at Washington is —— Kuki, and the Consul at New York, Takahashi Shinkichi.

The United States Envoy Extraordinary and Minister Plenipotentiary to Japan is Hon. John A. Bingham, and the American Consul-General at Yokohama is T. P. Van Buren.

Army.—For statistics, see "Annual Cyclopædia" of last year. New conscript regulations were promulgated Dec. 28, 1883, requiring all males to hold themselves in readiness for military service from the age of seventeen. These very distasteful laws temporarily deranged educational affairs, and caused many premature marriages, under a mistaken impression that married men were partially exempt. The transient inconvenience being past, Japan finds herself one of the best organized military nations in Asia. The superiority of her equipment has been shown in her power to mobilize troops in expectation of war with Corea; and in Seoul the quality of her infantry was seen in the attack by the Chinese regulars and Corean military, when, after several hours of fighting, it was found that the Japanese, after effecting an orderly retirement in the face of greatly superior numbers, inflicted four times the damage done to themselves. The navy is to be further strengthened by new ironclads ordered in England.

Finance.—The financial condition of the empire is shown by the estimates for the seventeenth year of Meiji (1884–'85), in the notification of May 13. The figures are in yen (dollars) and rin (mills):

DOMESTIC AND FOREIGN DEBT.

April 30, 1883	335,366,186·30
April 30, 1884	324,709,013·80
Total decrease	10,657,172·50

STATE OF THE RESERVE FUND.

April 30, 1883	58,415,490·442
April 30, 1884	47,408,156·043

LOAN ACCOUNT.

April 30, 1883, advances	19,061,559·297
April 30, 1884	23,696,128·400
Increase over preceding year	4,634,569·103

FUND FOR RELIEF OF AGRICULTURAL DISTRESS.

April 30, 1883	1,897,695·238
April 30, 1884	2,230,554·743
Increase	332,859·505

The national debt amounts to 324,709,013·800, of which 8,476,072·000 is foreign, at 7 per cent. The domestic debt bearing interest amounts to 214,479,310·000, and that without interest to 8,339,271·000; the paper money in circulation to 93,414,360·800. Total domestic debt, 316,232,941·800. Among the items are the following:

New debt at 4 per cent	10,752,450·000
Kin satsu exchequer bonds	6,070,850·000
Unregistered exchequer bonds	1,250,000·000
Hereditary pension bonds	171,885,885·000
(Interest at from 5 to 10 per cent.)	
Pension bonds for ex-Shinto priests	147,125·000
Loans for public works, at 6 per cent.	11,881,950·000
Nakasendo Railway bonds, at 7 per cent.	8,091,600·000
Loan for suppressing S. W. rebellion in 1877.	10,000,000·000
Old domestic debt without interest	8,339,271·000
Paper money in circulation	93,414,360·800

The chief problems in Japanese finance are, to redeem (1) the bonds created on the withdrawal of the old Kin satsu (gold notes) currency, made of card-board, and issued during the first year of the Restoration; (2) the hereditary pension bonds used to commute or extinguish the claims, formerly payable in rice, of the feudal military-literati or samurai class; (3) the loan made on account of "the Satsuma rebellion"; (4) to carry on internal improvements and public works, including railways and telegraphs; and (5) to call in enough of the outstanding paper money to maintain the credit of the Government. Owing to stagnation of trade, the visitation of severe storms, agricultural distress, and heavy taxes, causing riots—instigated in some cases by gamblers with whom the Government has begun to deal rigorously—the past year has been declared by native editors "one of the blackest in our history."

Politics.—The political ferment of the period since 1868 has produced several rival and two hostile parties, the Constitutional or Conservative, and the Liberal or Radical. The latter, led by Mr. Itagaki, has had great influence during the past three years in shaping public opinion and influencing government measures. Unfortunately, on the 23d of September, 1884, political riots broke out in the Ibaraki prefecture, in which a prominent liberal and sixteen others were concerned; dynamite was used, several policemen were killed or wounded, and the existence of a widely ramified plot was revealed, or at least suspected by the Government. Ten days later the chief members of the Liberal party met at Osaka, and formally dissolved their organization. The alarm of honest men on the one hand, and Government pressure on the other, doubtless precipitated this unexpected result. After agrarian riots in the Saitama prefecture, October 31, some members of the former Liberal party were arrested on suspicion of instigating the disorders, and a few even of high treason. A Progressive party, which is still vigorous, affords a healthful rivalry and offset to the Conservatives. All eyes are now bent forward to 1890, and political education is vigorously conducted by an enterprising press, despite rigorous censorship.

In her foreign policy, Japan has as yet been unable to obtain the revision of the treaties made with the United States and European powers at the opening of the country some years ago. Her desire is that the tariff may be changed, and the odious extra-territoriality clause be expunged. These granted, she offers to open the whole country to the unrestricted trade, travel, and residence of foreigners. Negotiations to this end have been carried on for a decade, but thus far have been fruitless.

Corea.—Corea was the active theatre of Japan's foreign policy in 1884. A legation was built in Séoul in European style of architecture and furniture, costing $80,000, with military barracks attached. The pro-Japanese or Progressive party in Corea were greatly encouraged by Japan's friendly attitude, and vigorous propagandism of Japanese ideas began in the capital. On the 11th of November, Mr. Takézoyé, the Mikado's envoy, made a communication at an audience with the King, by which the Government of Japan remitted $400,000 of the half-million of indemnity due by Corea to Japan, for the destruction of the legation and murder of Japanese in 1882. This remission of debt was made by the Mikado to be "devoted to the introduction of civilization into the country."

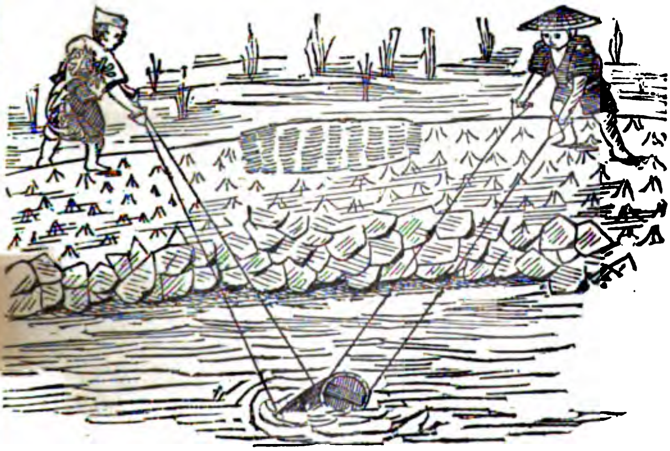
On the night of the 4th of December, the strained relations between the rival Corean parties broke out into open hostility of plots, counter-plots, assassination, and incendiarism. The Corean King asked of Mr. Takézoyé the protection of his legation guard, and at midnight the palace was guarded within by Japanese troops and surrounded by the Corean military, who had been drilled partly in Japanese and partly in Chinese style. On the 5th, the Progressives, seizing the reins of government, filled the offices with their own nominees. In the disorders six of the expelled ministers, Conservatives, were killed. On the afternoon of the 6th, about the same time that the Japanese were re-enforced by a detachment of marines and sailors from their man-of-war at the seaport, the Chinese troops, encamped near Séoul since 1882, joined the Corean Conservatives and approached the palace. Firing began between the jealous military; and the Corean troops siding with the Chinese, the Japanese retired in good order to their legation, reaching it at midnight with some loss. On the afternoon of the 7th, after patiently withstanding a siege of stones, bullets, and fire-brands, Mr. Takézoyé ordered a retreat to Chimulpo, the seaport. With the minister, and the artisans, numbering one hundred, including women and children, in the center, the Japanese infantry kept the mob and native soldiery at bay, cut open the city gate, and reached Chimulpo late next day, nearly starved. The Mikado's ambassador, Count Inouyé, Minister of Foreign Affairs, left Tokio December 22 with full powers. In Séoul, a convention was agreed upon by which the Coreans agreed to pay $500,000 indemnity, rebuild the Japanese legation building which was burned, and allow a garrison of 1,500 Japanese troops in Séoul.

With China, the Riu Kiu question, which had been referred to a joint high commission of the two powers, is not yet settled. The matter is one of boundary and possession, Japan in this case having nine points of the law. The issue, when apparently near settlement, was hindered by China's action in referring the solemn agreement of the joint high commissioners to the revision of certain mandarins of inferior rank. This action of China in thus treating the work of so august a commission renders a solution of the newer Corean question more difficult.

JAPANESE SPADE.

Railways.—The improvement of the public highways of the country proceeds apace with the building of new railways. Many of the old public roads are being widened, newly metaled and drained, while bridle-paths are being turned into hard roads able to bear wheels. On the 22d and 23d of September, 1884, the new honor put upon this branch of public industry was conspicuously shown by public celebrations, in Tochigi and Fukushima prefectures, at which cabinet ministers and the Mikado's counselors were present. More miles of railroad were opened during 1884 than in any year of Japan's history. The sections finished and open for traffic were, from Tsuruga to Nakasendo, eleven miles; from Sékigahara to Nagahama, twenty-three miles, May 25th; from Uyéno to Takasaki, sixty-three miles, June 25th. The two first named are owned by Government, and the latter is the property of the Nippon Railway Company. All lie in fertile regions, connecting markets with seaports.

Religion.—On the 11th of July, Japan took the final step toward that perfect religious toleration which now places her in the front rank of enlightened nations. In this respect, this Asiatic nation is ahead of Russia and some other European nations. Official priesthood was abolished, and all religions, Shinto, Buddhism, and Christianity, are equal before the law. In certain cases where Shinto priests, as governmental officers, or as hereditary custodians of shrines, held vested rights, provision was made for commutation of salaries or other income, as is shown in the report on finance.



HAND-IRRIGATION IN JAPAN.

On the 6th of March, 1884, Tokugawa Shigéhidé, better known as Hitotsubashi, the last "Tycoon," died at Shidzuoka. He was the seventh son of the Daimio of Mito, who was the father of forty-three children, and was born in 1837. Displaying talent at an early age, he was adopted into the family of Hitotsubashi, and at eighteen he was proficient in all belonging to the education of a Japanese gentleman of high rank. On the 6th of January, 1867, he was made Sho-gun (Tycoon). At the outbreak of the civil war in 1868, he fled in the U. S. steamship Iroquois to Yedo. He was pardoned by the new government, pensioned, and lived in retirement until his death. With the fall of the old government, Buddhism declined.

JAPANESE MATTOCKS.

Agriculture.—The unusual distress suffered by the agricultural classes during 1884, owing to high taxes, storms, and dullness of trade, with partial failure of the crops, calls attention to the ancient methods of farming in vogue.

Only about one tenth of the entire area of Japan is cultivated, or about 9,000,000 acres, supporting not quite four persons to an acre. At least three fourths of fertile country lies fallow, awaiting the farmer's plow, improved methods, greater variety of crops, and the rearing of live-stock, in which the country is deficient. American merchants have endeavored to introduce our common agricultural instruments and labor-saving machinery, but thus far, except on model farms conducted under the auspices of the Government, with utter lack of success. It is probable that our tools are not sufficiently adapted to the peculiar conditions of the market, and that native prejudices are not sufficiently humored. The

Americans, by tact, study, and patience, may yet overcome the conservatism of the Japanese *inaka*, though the cheapness of labor in Japan renders competition difficult and successful innovation very slow. The State Department has recently instructed its agents to gather information on the subject, and the illustrations used in this article were furnished by the United States consul at Hiogo, T. McF. Patten.

Almost all the improved farm-land in Japan has reached its present condition after fifty generations of human toil with spade and mattock. Most of it lies in valleys, and is irrigated with immense labor. Fertility increases in proportion to nearness of, and diminishes in the ratio of distance from cities, as the chief if not the only manure in use is human excrement. As it is economized by various expedients with painful anxiety, and used in the crude state, a common intestinal trouble among the natives is tape-worm. Very little hard land is utilized, and most of the work of the cultivator is in liquid mud. Rice-land is five times more valuable than arable land. Spade-husbandry is the main feature of farming, and in this the Japanese can be taught little. His tool, made of iron, wood, and rope, is chiefly made by hand. Mattocks are likewise of timber and metal. After these, in order, come the plows, made of wood and shod with iron, and drawn either by human or bovine power. They cost from eighty cents to two dollars each. Nine out of ten "fields" in Japan are little squares a few yards across, separated from one another by slightly raised mud-banks, and communicating by an opening a foot wide for the water to flow through. Pulverizers and rollers are usually of wood, the spikes or cutters sometimes being of iron. Rakes are of wood, and the *joren*, or scoop, takes the place of our shovel, the user pulling it toward him, instead of pushing as with us. Planting and harvesting are done by hand, each stalk or bunch, whether as sprout for transplanting or as ripened stock, being seized by the hand. Hatcheling, winnowing, grinding, and pounding are still performed in the primitive way begun millenniums ago. Irrigation is carried on by terracing mountain gullies or valleys in which a stream flows. When the field is higher than the stream, the tread-wheel by a single person, or the dipping-bucket slung by a pair, forms the usual apparatus. The present Lilliputian methods must be revolutionized, and the native bill of fare lengthened, before American tools are in demand. Male field-hands work twelve hours a day, have five holidays in each month, and receive their food, lodging, and wages ranging from 10 to 15 yen per annum ($8.60 to $12.90). Female laborers work the same hours, are not entitled to holidays, and receive, besides their food and lodging, about 7 yen ($6) per annum. Manure costs about twelve dollars an acre.

Commerce.—The following is a synoptic table of the foreign trade movement of Japan during 1888:

IMPORTS.

ARTICLES.	Yokohama.	Hiogo.	Nagasaki.	Hakodate.	Total.
Cotton manufactures	$6,240,188	$2,728,501	$70,865	....	$9,037,504
Woolen and mixed cotton and woolen goods	2,261,082	1,258,067	45,607	....	3,564,766
Metals, including manufactures	1.185,581	786,588	60,894	$900	1,949,908
Kerosene-oil	1,851,947	879,788	224,525	....	2,320,905
Sugar	3,230,849	1,010,285	214,471	....	4,529,689
Miscellaneous foreign products	3,392,802	1,255,551	142,964	2,244	4,900,291
Miscellanous Eastern products	419,768	412,906	186,984	1,934	1,764,700
Merchandise	$18,618,612	$8,829,692	$896,810	$4,878	$29,168,040
Specie	2,801,645	2,466,528	183,202	....	5,451,375
Totals	$21,420,257	$10,796,220	$1,079,512	$4,878	$34,619,415

EXPORTS.

ARTICLES.	Yokohama.	Hiogo.	Nagasaki.	Hakodate.	Total.
Silk	$18,270,912	$16,388	.....	.....	$18,287,300
Silk-worms' eggs	55,287	.....	.....	.....	55,287
Cocoons	219,282	.....	.....	.....	219,282
Tea	3,688,807	2,358,483	$64,677	.....	6,106,467
Coffee	355,607	379,895	.....	.....	735,502
Tobacco	77,660	32,057	13,275	.....	122,992
Wax	4,804	369,339	15,945	.....	390,088
Camphor	.....	535,291	171,689	.....	706,980
Coal	48,680	43,882	1,270,418	.....	1,357,975
Dried fish	568,452	296,515	578,796	$117,562	1,556,325
Rice	59,472	463,148	478,320	.....	1,000,940
Lacquer	420,778	92,684	6,248	.....	519,700
Porcelain	309,741	181,098	52,923	.....	543,762
Sea-weed	70,088	44,361	4,203	229,564	348,216
Miscellaneous	1,547,205	1,665,616	455,855	89,624	3,758,300
Merchandise	$25,691.215	$6,473,757	$3,107,844	$436,750	$35,709,066
Specie	1,905,516	1,212,884	141,470	.....	3,259,870
Totals	$27,596,731	$7,686,591	$3,248,814	$436,750	$38,968,886

The United States enjoys 26·2 per cent. of the total foreign trade of Japan, amounting to $16,434,954, or 11·4 per cent. of the import trade, amounting to $3,187,114. In receiving exports from Japan, the United States leads with 38·1 per cent.; France coming next, with 28·0 per cent. Our imports into Japan last year, 1884, were: Kerosene-oil, $2,456,260; provisions, $159,659; clocks and watches, $138,763; machinery, $31,521; leather, $56,652; canvas and duck, $22,921. Thirty-nine firms and 478 residents in Japan are American. Ninety-two American ships entered Japanese ports in 1883.

JEQUIRITY. See Drugs, New.

K

KAIRINE. See Drugs, New.

KANSAS. State Government.—The State officers during the year were the following: Governor, George W. Glick, Democrat; Lieutenant-Governor, D. W. Finney; Secretary of State, James Smith; Treasurer, Samuel T. Howe; Auditor, E. P. McCabe; Attorney-General, W. A. Johnston; Superintendent of Public Instruction, H. C. Speer; Insurance Commissioner, R. B. Morris; Railroad Commissioners, Henry Hopkins, James Humphrey, and L. L. Turner. Judiciary, Supreme Court: Chief-Justice, Albert H. Horton; Associate Justices, Daniel M. Valentine and David J. Brewer, the latter succeeded by T. A. Hurd.

Growth and Present Condition.—Reviewing the history of the State since its admission, the Governor, in his message to the Legislature of 1885, gives some statistics that indicate its growth. The thirty-one counties organized at the date of its admission have increased to eighty-two, and the population of the State, then but little in excess of 100,000, is now fully a million and a quarter. Then, only 406,468 acres of its area of productive soil were under cultivation, and the leading crop-products of the State aggregated only 194,173 bushels of wheat and 6,150,727 bushels of corn. During the year just closed, 9,458,787 acres were under cultivation, and the leading cereal products of the State aggregated 48,050,431 bushels of wheat and 190,870,686 bushels of corn. In January, 1861, the assessed value of the property of the State aggregated only $24,774,333; now it aggregates $237,020,391. Then, there was not a mile of railway within the boundaries of Kansas; now, there are 4,486·50 miles in operation; the assessed value of these roads is $28,455,906.86; and sixty-nine of the eighty-two organized and four of the thirteen unorganized counties of the State are traversed by one or more lines of railway. In 1861 the live-stock of the State comprised only 20,344 horses, 1,496 mules, 93,463 cattle, 138,294 swine, and 17,569 sheep—a total of 271,166 head. Now, there are in Kansas 461,136 horses, 64,889 mules, 1,858,825 cattle, 1,953,144 swine, and 1,206,297 sheep—a total of 5,544,391 head.

Finances.—The total bonded debt of the State on Jan. 1, 1885, was $935,500. Of this amount, the permanent school fund held $544,500; the university fund, $9,000, and the sinking fund, $61,000—a total of $614,500. Only $321,000 of the bonds remain in the hands of individuals or corporations. The cash in the treasury belonging to the sinking fund is $13,203.58. During the two years covered by the fourth biennial report of the State Treasurer, viz., from July 1, 1882, to June 30, 1884, the receipts of the treasury (including a balance of $644,323.76 on hand July 1, 1882) aggregated $4,588,460.50. The disbursements during the same period were $3,833,948.43, leaving a balance in the treasury, June 30, 1884, of $754,512.07. From July 1 to Dec. 31, 1884, the receipts of the State treasury were as follow: From tax, $298,733.98; from principal of school lands, $118,811.29; from permanent school-fund bonds paid, $33,552.35; from interest on sales of school land, $67,985.80; from interest on permanent fund bonds, $58,268.68; from other sources, $164,949.44. Making an aggregate of $742,301.54, which, added to the balance on hand June 30, 1884, makes a total of $1,496,813.61. The disbursements during the same six months aggregated $1,118,469.96, leaving in the treasury, December 31, the sum of $308,843.65.

"The indebtedness of the State," says the Governor, "is so small that the contrast presented by the enormous aggregate of local debts is startling. The bonds issued by the several counties of Kansas, and outstanding on the 1st of July last, aggregated $7,444,741.90, and the county warrants outstanding at the same date aggregated $621,006.39, making a total county indebtedness of $8,065,748.29. The township bonds outstanding at the same time aggregated $2,625,243.55, and the township warrants outstanding, $24,787.35—making a total township indebtedness of $2,350,060.90. The city bonds thus outstanding aggregated $2,287,125.90; and the city warrants due and unpaid, $200,310.27—making a total city indebtedness of $2,487,436.17. The school-district bonds outstanding at the same date aggregated $2,734,788.31, and the school-district warrants $13,926.19—making a total school-district indebtedness of $2,748,714.50. Grand total of municipal indebtedness, county, township, etc., $15,951,929.86."

Public Education.—The school system of Kansas embraces the common schools, the University, the Agricultural College, and the Normal School. The expenditures of the State for public education exceed the aggregate of all its other expenditures. The school population—between the ages of five and twenty-one—numbers 411,250, an increase of 28,981 over

1883. The pupils enrolled numbered 308,601, an increase of 17,438 over the enrollment of the previous year. The attendance in 1883 averaged 168,117; for the year just closed, 207,221 — an increase of 39,104. Average wages paid teachers per month, males, $40.70; females, $32.85.

The school buildings and grounds are valued at $5,715,582. There are 6,605 school-houses, of which 417 were built during the past year.

The State University had 521 students enrolled during the last fiscal year, and is steadily growing. The State Agricultural College is flourishing. Its buildings are substantial and commodious, its grounds attractive, and its attendance has increased 26 per cent., 395 students now being enrolled. The new wing of the main college-building is completed. The endowment fund aggregates $475,305.18, all of which, except $8,111, is invested at rates of interest varying from six to ten per cent. The attendance at the State Normal School during the last fiscal year was 534.

Public Institutions.—There are six great public charities: the Insane Asylums at Osawatamie and Topeka, the Institution at Wyandotte for the Education of the Blind, the Institution at Olathe for the Education of the Deaf and Dumb, the State Reform School near Topeka, and the Asylum at Lawrence for Idiotic and Imbecile Youth.

More than two fifths of the total appropriations made by the Legislature for the support of the State government during the current fiscal year—$352,984 of a total of $830,946—are expended for the maintenance of these charities. The Penitentiary not only continues self-sustaining, but the profits of the coal-mine have made it a source of revenue to the State. Its surplus earnings for the year ended June 30, 1884, were $25,717.09. The output of the coal-mine is steadily increasing.

Sorghum-Sugar Industry. — There are three sugar-factories in the State, at Sterling, Hutchinson, and Ottawa, and they produced during the year 602,000 pounds of sugar and 155,500 gallons of sirup. This was made from 19,300 tons of sorghum-cane. The quality of the sugar is identical with that of Louisiana sugar.

Prohibition. — Returns received in January from 66 of the 81 organized counties, including all the populous ones, relative to the working of prohibition, demonstrate, it is claimed, three facts favorable to prohibition: 1. That it has materially decreased the number of saloons. 2. That an unusually large per cent. of the prosecutions under the law have resulted in convictions. 3. That the principle of prohibition is growing stronger. The following are the figures:

Number of saloons prior to May 1, 1881	708
Number of saloons Jan. 1, 1884	818
Number of saloons, decrease	895
Number of counties covered by report	66
Number of counties having no saloons	41
Number of counties in which there are saloons	25
Number of cases tried in district courts	460
Number of convictions in district courts	351
Number of acquittals in district courts	47
Number of hung juries	62
Proportions of convictions in district courts	79
Number of cases now pending in district courts	218
Number of cases tried in justice courts	512
Number of convictions in justice courts	378
Number of acquittals in justice courts	75
Number of hung juries in justice courts	59
Proportion of convictions in justice courts	84
Total number of cases tried	972
Total number of convictions	729
Aggregate of fines imposed	$93,200
Number of defendants imprisoned	81
Number of counties in which prohibition is growing stronger	51
Number of counties in which prohibition is growing weaker	7
Number of counties in which prohibition is unchanged	8

Of the 813 saloons open Jan. 1, 1884, 160, or over one half, were in Leavenworth. The prohibitory law took effect May 1, 1881.

The State Temperance Union met in annual session in Topeka, near the end of November. The president, in his address, made these claims:

1. John A. Martin and the entire Republican ticket, upon a platform "demanding the honest enforcement of the prohibitory amendment, that the full effects of prohibition may be realized, that the declared will of the people may be respected, and the majesty of the law vindicated," has been elected by 38,489 majority.
2. George W. Glick, C. K. Holliday, and the Democratic ticket, upon a platform denouncing prohibition and demanding resubmission, aided and abetted in their efforts by those Resubmissionists who deserted the Republican party, have been defeated by 38,489 majority.
3. The Legislature elected by the people is two to one against resubmission and in favor of the honest enforcement of the prohibitory amendment in spite of the fusion of Democrats and Resubmissionists.
4. The Republican party of Kansas by this action stands committed to the honest enforcement of the prohibitory amendment, against a Constitutional Convention, and against resubmission; and the people of Kansas have sustained the party's position on these questions by 38,489 majority.

A State Convention was held in Lawrence, Sept. 2, 1884, and a Prohibition party organized in Kansas, auxiliary to the National Prohibition party. A platform was adopted, and an electoral ticket put in the field. This party held a convention in December, and besides passing resolutions demanding prohibition, pronounced in favor of female suffrage.

Political.—The following were the Republican candidates for State officers:

For Governor, John A. Martin; for Lieutenant-Governor, A. P. Riddle; for Secretary of State, E. B. Allen; for Auditor, E. P. McCabe; for Treasurer, S. T. Howe; for Attorney-General, S. B. Bradford; for Superintendent of Public Instruction, J. H. Lawhead; for Chief-Justice, A. H. Horton; for Associate Justice, W. A. Johnston.

For Representatives in Congress their candidates were:

First District, E. N. Morrill; Second District, E. H. Funston; Third District, B. W. Perkins; Fourth District, Thomas Ryan; Fifth District, John A. Anderson; Sixth District, Lewis Hanback; Seventh District, Samuel R. Peters.

The following was the Democratic ticket:

For Governor, George W. Glick; for Lieutenant-Governor, C. K. Holliday; for Secretary of State, Eugene Hagan; for Auditor, H. V. Gavigan; for

Treasurer, W. A. Huliman; for Attorney-General, George T. Smith; for Superintendent of Public Instruction, W. J. Keyes; for Chief-Justice, W. A. Campbell; for Associate Justice, T. A. Hurd.

A convention of Republicans favoring a resubmission to the people of the prohibitory amendment was held. They supported the Republican national ticket, but co-operated with the Democrats on State issues. The Democratic nominee for Lieutenant-Governor was a resubmission Republican. On the 4th of November the Republican ticket was elected. The following is the vote for Presidential Electors: Republican, 154,406; Democratic, 90,132; Greenback, 16,341; Prohibition, 4,495. Seven Republican Congressmen were chosen. For Governor the vote was: Republican, 146,819; Democratic, 108,284; others, 10,036. The Republican vote for the other State officers ranged from 150,811 for Auditor, to 155,265 for Treasurer. The Legislature of 1885 consists of 37 Republicans and 3 Democrats in the Senate, and 107 Republicans, 11 Democrats, and 7 Independents in the House.

KENTUCKY. State Government. — The State officers during the year were the following: Governor, J. Proctor Knott, Democrat; Lieutenant-Governor, James R. Hindman; Secretary of State, James A. McKenzie; Treasurer, James W. Tate; Auditor, Fayette Hewitt; Superintendent of Public Instruction, Joseph D. Pickett; Attorney-General, T. W. Hardin; Register of Land-Office, John G. Cecil; Commissioner of Agriculture, John F. Davis; Insurance Commissioner, L. C. Norman. Judiciary, Court of Appeals: Chief-Justice, T. F. Hargis; Associate Justices, Thomas H. Hines, William S. Pryor, and Joseph H. Lewis. In September the term of office of Judge Hargis expired. His successor was William H. Holt. Judge Hines became Chief-Justice.

Legislative Session. — The Legislature, which convened on the 31st of December, 1883, adjourned on the 12th of May, 1884. Among the acts passed were:

Several prohibiting the sale of intoxicating liquors in various localities.

Establishing a criminal court in the Sixteenth Judicial Circuit.

Amending the acts regulating the incorporation of insurance companies.

Providing for a registration of voters in the city of Louisville.

For the building of a branch Penitentiary at or or near Eddyville, in Lyon county.

Extending the boundaries of the city of Louisville.

Creating the county of Knott from portions of Floyd, Letcher, Perry, and Breathitt counties, with a county-seat to be located and called Hindman.

Providing for and regulating the ventilation of coal-mines, and for the better protection of miners.

Establishing an institution for the education of colored deaf-mutes at Danville in connection with the institution for whites there.

To legalize $1,500,000 of 4 per cent. coupon bonds of the city of Louisville, issued under an ordinance voted upon by the voters of said city on May 19, 1883.

To prohibit the circulation of immoral literature.

To incorporate the Kentucky Humane Society for the Prevention of Cruelty.

For the continuation of the Geological Survey and Bureau of Immigration.

In relation to corporations and associations organized under other authority than the laws of this State for the purpose of furnishing life indemnity or insurance upon the assessment plan.

To authorize the trustees appointed by courts of other States where the *cestui que* trust resides to collect, receive, and remove to such place of residence any personal estate of the *cestui que* trust.

To provide for funding the State debt now owing to the banks.

To equalize assessments for revenue purposes, and to provide for a State Board of Equalization.

To provide for liberty of conscience. This declares that "all persons committed to any State prison, reform-school, house of refuge, or other place of confinement in said State, shall be allowed spiritual advice and spiritual ministration from any recognized clergyman of the denomination or church to which such persons so committed or received may respectively belong or have belonged."

Constitutional Amendment. — There was also passed "An act for taking the sense of the good people of this Commonwealth as to the necessity and expediency of calling a convention to amend the Constitution, and to ascertain the number of persons entitled to vote for Representatives." The vote is to be taken at the August election in 1885. The following is the provision for ascertaining the number of legal voters:

That all assessors are hereby required to enroll, in a column which each shall open in his assessor's book for that purpose, the names of all citizens having the right to vote for Representatives for the year 1885. But said assessors shall not enroll in such column the name of any person unless they shall at the time know that he is entitled to vote for Representatives at said election, and such knowledge shall be founded only upon (1) the personal acquaintance of the assessor; or (2) sufficient information obtained by him directly from the person whose name is enrolled; or (3) a satisfactory statement, under oath, from other creditable persons who know the facts necessary to the qualification of such voter.

The Prison.—The new prison is intended for male criminals under thirty years of age, and not known to have been previously sentenced in this or any other State or country. The discipline to be observed in said prison shall be reformatory in its tendency, and the said managers shall have power to use such means of reformation, consistent with the improvement of the inmates, as they may deem expedient. Agricultural labor or mechanical industry shall be chief elements in any plan adopted for the reformation of said criminals."

Education.—Perhaps the most important act of the session was one to amend and reform the common-school laws of the Commonwealth. The following are its most important provisions:

There shall be throughout the State of Kentucky a uniform system of common schools in accordance with the Constitution of the State and the provisions of this act. No school shall be deemed a "common school," within the meaning of this chapter, or be entitled to any contribution out of the school fund, unless the same has been, pursuant hereto, actually kept by a qualified teacher for three months in districts having 35 pupils or less, for four months in districts having more than 35 and less than 45 pupils, and for five months for districts having 45 or more pupils during the same school-year, and at which every child residing in the district, between the ages of six and twenty years, has had the privilege of attending, whether contributing toward defraying its expenses or not.

The annual resources of the school fund shall consist of:

The interest on the bond of the Commonwealth, for $1,327,000, in aid of common schools, at the rate of 6 per cent. per annum, payable January 1st and July 1st.

The dividends on 735 shares of the capital stock of the Bank of Kentucky, representing a par value of $73,500, owned by the State.

The interest on the bond issued for surplus, due the counties by the State, at the rate of 6 per cent. per annum, payable on January and July 1st.

The annual State tax of twenty-two cents on each $100 of the taxable property of the State, "including railroads, and a proportionate share of the special taxes paid by turnpike-roads, banks, and all other corporations."

The annual tax of fifty cents on each $100 of the capital stock of the Farmers' Bank of Kentucky, of the Bank of Kentucky, of the Farmers' and Drovers' Bank, and of the Bank of Shelbyville.

All other moneys and property-taxes, fines, and forfeitures, expressly set apart by existing laws in aid of common schools.

There may be a county tax not exceeding twenty-five cents on $100, and one dollar on each poll, levied for school purposes in any county a majority of whose qualified electors shall vote for it.

The Superintendent of Public Instruction, the Secretary of State, the Attorney-General, and their successors in office, together with two professional teachers to be elected by them, shall be a body politic and corporate, by the name and style of "Board of Education for the State of Kentucky."

There shall be a county superintendent of common schools elected for two years by the qualified voters of each county. The counties are divided into districts, each of which is under the control of three elective trustees. Towns and cities may have a separate school organization.

Colored school trustees for each colored school district shall be elected at the same time and in the same manner that white trustees are elected: *Provided, however*, That no tax shall be levied upon the property or poll, or any services required of any white person to aid in building or repairing a school-house for the use of colored children; and no tax shall be levied upon the property or poll, or any services required of any colored person to aid in building or repairing a school-house for the use of white children. And no colored person shall be allowed to vote for a trustee of a white school; and no white person shall be allowed to vote for a trustee of a colored school. It shall not be lawful, under any of the provisions of this act, for any white child to attend any common school provided for colored children, or for any colored child to attend any common school provided for white children.

There shall be separate teachers' institutes for colored teachers, and they may have a separate State Teachers' Association.

United States Senator.—On February 6, Joseph S. C. Blackburn, after a protracted struggle in the Democratic caucus, was elected United States Senator. He was born on a farm in Woodford county, Oct. 1, 1838. At the age of fifteen, he was sent to a classical school in Frankfort, whence he went to Centre College, Danville, graduating in 1857. In 1858 he began the practice of law in Chicago, but returned to his native county in 1860. Entering the Confederate army in 1861, he served through the war, after which he resided in Arkansas until 1868, when he returned to his former home. In 1871 and 1873 he was elected to the Legislature of Kentucky. In 1874 he was sent to Congress, and was serving his fifth term when elected Senator.

Political.—The Republican State Convention assembled in Louisville on the 1st of May, chose delegates to the National Convention to meet in Chicago, and nominated presidential electors. The convention demanded the enforcement of all the constitutional amendments, a free ballot and an honest count, the continuance of the system of protection to home industries, free tobacco, and national aid to education. The Democratic State Convention met in Frankfort on the 7th of May, nominated presidential electors, and chose delegates to the Democratic National Convention. The resolutions adopted demand a tariff for revenue only.

On August 4th William H. Holt, Republican, was elected judge of the court of appeals for the first appellate district over Robert Riddell, Democrat, by a vote of 33,608 to 32,983. On the 4th of November the election resulted as follows: Democratic electors, 152,961; Republican, 118,122; Butler, 1,691; St. John, 3,139. Ten Democratic and one Republican (Ninth District) Congressmen were elected.

KOLBE, ADOLF WILHELM HERMANN, a German chemist, born in Elliehausen, Göttingen, Sept. 27, 1818; died in Leipsic, Nov. 25, 1884. He was educated at the Gymnasium of Göttingen and at the university of that town, where he studied chemistry under Wöhler from 1838 to 1842. During the three following years he was assistant to Bunsen, at Marburg, and in 1846 he became the assistant of Sir Lyon Playfair, at the Museum of Economic Geology in London. He was appointed successor to Bunsen in the professorship of Chemistry at the University of Marburg in September, 1851. This chair he held till 1865, when he was called to take charge of the chemical laboratory at Leipsic. Under his direction a magnificent laboratory was built, and at once thoroughly fitted up with the finest and most delicate apparatus necessary to chemical research. Students from all parts of the world flocked to the lectures, and the department of chemistry at Leipsic was by many considered superior even to that of the University of Berlin.

The greater portion of the many researches of Kolbe lie in the domain of organic chemistry. He shares with Frankland (his associate at Marburg and at London) the honor of originating the doctrine of the saturation capacity of carbon, a doctrine that has been more fruitful than any other in the development of theoretical organic chemistry. His publications date from 1845, when his researches on the composition of fusel-oil of grain, the action of chlorine upon carbon disulphide, and the discovery of trichlor-methyl-hyposulphuric acid and methyl-hyposulphuric acid appeared in Liebig's "Annalen." While in England, he published (in 1847) conclusions, showing that the fatty acids and benzoic acid contain alcohol radicals in place of an atom of hydrogen in formic acid. This theory he further developed and experimentally verified, and later he successfully maintained his priority against the claims made by Adam Wurtz. His work further includes investigations on the cyanogen compounds of alcohol radicals, on dimethyl arsenic derivatives, showing the exact constitutions of the cacodyl compounds. His great knowledge of theoretical chemistry led him to interpret correctly the composition of numerous organic compounds. He also enlarged our knowledge of the acids of gum-benzoin, of the chemical constitution of asparagine and asparagic acid, of the isomeric relations of fumaric and maleic acid, as well as of itaconic, citraconic, and mesaconic acid; of uric acid, of certain derivatives of cyanogen, and the phosphorus-compounds of platinum. The most conspicuous of all his work, however, was the synthesis of salicylic acid, and in 1874 he had so successfully modified his original method that salicylic acid became a commercial product. Kolbe was a decided opponent of the type and structural theories, and by his bitter and caustic criticisms did much good. Vagueness and ambiguity of thought and expression in chemical memoirs and treatises he denounced without mercy. By this action he isolated himself to a great degree from the more conservative chemists of his time.

In 1847 he became editor of Liebig's and Wöhler's "Handwörterbuch der Chemie," and in 1869 he undertook the editorship of Erdmann's "Journal für praktische Chemie." His published works include a "Manual of Organic Chemistry," in three volumes (1854–1878); volumes iii to v of Graham Otto's "Manual of Chemistry"; a "Short Text-book of Inorganic Chemistry" (1877), a corresponding "Text-book of Organic Chemistry" (1883), and a satire, "Aus der molekular Welt." He was the possessor of numerous degrees and honors, and recently had been awarded the Davy medal by the Royal Society of England in recognition of his researches on the isomerism of alcohols. It was expected that he would attend the annual meeting (December 1) and receive in person this testimonial; but a few days previous, without any premonitory symptoms, he was stricken with heart-disease, and was found dead on his own door-step after his day's work had been completed.

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LAW, CONSTITUTIONAL. Several important opinions on questions of constitutional law were rendered by the United States Supreme Court during the session beginning in October, 1834. (For the opinion of the Court on the question of a conflicting treaty and act of Congress, see TREATY-MAKING POWER OF THE UNITED STATES, in this volume.)

Indians not Citizens of the United States.—The fourteenth amendment to the Federal Constitution declares that "all persons born or naturalized in the United States, and subject to the jurisdiction thereof, are citizens of the United States, and of the State wherein they reside." In the case of John Elk against Charles Wilkins, the Federal Supreme Court held, November 3, that an Indian, born a member of one of the Indian tribes within the United States, is not, merely by reason of his birth within the United States, and the fact that he has voluntarily withdrawn from his tribe and taken up his residence among white citizens, a citizen within the meaning of the fourteenth amendment. Elk was a resident of Omaha, Nebraska, and claimed the right to vote. The defendant was an election officer in that city, who refused to let him vote.

The opinion of the Court was prepared by Justice Gray. He first points out that, under the Constitution of the United States as originally established, "Indians not taxed" were excluded from the persons according to whose numbers representatives and direct taxes were apportioned among the several States; and that Congress had and exercised the power to regulate commerce with the Indian tribes and the members thereof, whether within or without the boundaries of one of the States of the Union. The Indian tribes, being within the territorial limits of the United States, were not, strictly speaking, foreign states; but they were alien nations, distinct political communities, with whom the United States might, and habitually did, deal, as it saw fit, either through treaties made by the President and Senate, or acts of Congress in the ordinary forms of legislation. The members of those tribes owed immediate allegiance to their several tribes, and were not part of the people of the United States. They were in a dependent condition, a state of pupilage, resembling that of a ward to his guardian. Indians and their property, exempt from taxation by treaty or statute of the United States, could not be taxed by any State. General acts of Congress did not apply to Indians, unless so expressed as clearly to manifest an intention to include them. The alien and dependent condition of the Indian tribes could not be put off at their own will, without the advice or assent of the United States. They were never deemed citizens of the United States, except under explicit provisions of treaty or statute to that effect, either declaring to be citizens a certain tribe, or such members of it as chose to remain behind on the removal of the tribe westward; or authorizing individuals of particular tribes to become citizens by naturalization.

Coming to the consideration of the fourteenth amendment, the Court says that the main object of the opening sentence was "to settle the question, upon which there had been a difference of opinion throughout the country, and in this court, as to the citizenship of free negroes (Scott *vs.* Sandford, 19 Howard, 393); and to put it beyond doubt that all persons, white or black, and whether formerly slaves or not, born or naturalized in the United States, and owing no allegiance to any alien power, should be citizens of the United States, and of the State in which they reside. (Slaughter-House Cases, 16 Wallace's Reports, 36, 73; Strauder *vs.* West Virginia, 102 U. S. Reports, 303, 306.") The opinion then proceeds:

> This section contemplates two sources of citizenship, and two sources only: birth and naturalization. The persons declared to be citizens are "all persons born or naturalized in the United States, and subject to the jurisdiction thereof." The evident meaning of these last words is, not merely subject in some respect or degree to the jurisdiction of the United States, but completely subject to their political jurisdiction, and owing them direct and immediate allegiance. And the words relate to the time of birth in the one case, as they do to the time of naturalization in the other. Persons not thus subject to the jurisdiction of the United States at the time of birth can not become so afterward, except by being naturalized, either individually, as by proceedings under the naturalization acts, or collectively, as by the force of a treaty by which foreign territory is acquired.
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> Indians born within the territorial limits of the United States, members of, and owing immediate allegiance to, one of the Indian tribes (an alien, though dependent, power), although in a geographical sense born in the United States, are no more "born in the United States and subject to the jurisdiction thereof," within the meaning of the first section of the fourteenth amendment, than the children of subjects of any foreign government born within the domain of that government, or the children, born within the United States, of embassadors or other public ministers of foreign nations.
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> This view is confirmed by the second section of the fourteenth amendment, which provides that "representatives shall be apportioned among the several States according to their respective numbers, counting the whole number of persons in each State, excluding Indians not taxed." Slavery having been abolished, and the persons formerly held as slaves made citizens, this clause fixing the apportionment of representatives has abrogated so much of the corresponding clause of the original Constitution as counted only three fifths of such persons. But Indians not taxed are still excluded from the count, for the reason that they are not citizens. Their absolute exclusion from the basis of representation, in which all other persons are now included, is wholly inconsistent with their being considered citizens.
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> So the further provision of the second section for a proportionate reduction of the basis of the representation of any State in which the right to vote for presidential electors, representatives in Congress, or executive or judicial officers, or members of the Legislature of a State, is denied, except for participation in rebellion or other crime, to "any of the male inhabitants of such State, being twenty-one years of age and citizens of the United States," can not apply to a denial of the elective franchise to Indians not taxed, who form no part of the people entitled to representation.
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> It is also worthy of remark that the language used, about the same time, by the very Congress which framed the fourteenth amendment, in the first section of the Civil Rights Act of April 9, 1866, declaring who shall be citizens of the United States, is "all persons born in the United States, and not subject to any foreign power, excluding Indians not taxed" (14 U. S. Stat., 27; U. S. Rev. Stat., § 1992).
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> Such Indians, then, not being citizens by birth, can only become citizens in the second way mentioned in the fourteenth amendment, by being "naturalized in the United States," by or under some treaty or statute.

The Court adds that since the ratification of the fourteenth amendment Congress has passed several acts for naturalizing Indians of certain tribes, "which acts would have been superfluous if Indians were or might become, without any action of the Government, citizens of the United States"; and that "the recent statutes concerning homesteads are quite inconsistent with the theory that Indians do or can make themselves independent citizens by living apart from their tribes." In conclusion, the Court says: "Upon the question whether any action of a State can confer rights of citizenship on Indians of a tribe still recognized by the United States as retaining its tribal existence, we need not and do not express an opinion, because the State of Nebraska is not shown to have taken any action affecting the condition of this plaintiff. (See Chirac *vs.* Chirac, 2 Wheaton's Reports, 259; Fellows *vs.* Blacksmith, 19 Howard's Reports, 366; United States *vs.* Holliday, 3 Wallace's Reports, 407, 420; United States *vs.* Joseph, 94 U. S. Reports, 614, 618.)

"The plaintiff, not being a citizen of the United States under the fourteenth amendment of the Constitution, has been deprived of no right secured by the fifteenth amendment, and can not maintain this action."

From this decision Justices Harlan and Woods dissented, in an elaborate opinion written by the former. They maintain that there is nothing in the history of the adoption of the fourteenth amendment that justifies the conclusion that only those Indians are included in its grant of national citizenship who were, at the time of their birth, subject to the complete jurisdiction of the United States. "A careful examination of all that was said by Senators and Representatives, pending the consideration by Congress of the fourteenth amendment, justifies us in saying that every one who participated in the debates, whether for or against the amendment, believed that, in the form in which it was approved by Congress, it granted, and was intended to grant, national citizenship to every person of the Indian race in this country who was unconnected with any tribe, and who resided, in good faith, outside of Indian reservations, and within one of the States or Territories of the Union. This fact is, we think, entitled to great weight in determining the meaning and scope of the amendment."

> It seems to us that the fourteenth amendment, in so far as it was intended to confer national citizenship upon persons of the Indian race, is robbed of its vital force by a construction which excludes from such citizenship Indians who, although born in tribal relations, are within the complete jurisdiction of the United States. There were, in some of our States and Territories at the time the amendment was submitted by Congress, many Indians who had finally left their tribes and come within the complete jurisdiction of the United States and of the States and Territories in which they resided. They were as fully prepared for citizenship as were or are vast numbers of the white and colored races in the same localities. Is it conceivable that the statesmen who framed, the Congress which submitted, and the people who adopted, that amendment intended to confer citizenship, national and State, upon the entire population in this country of African descent (the larger part of which was shortly before held in slavery), and, by the same constitutional provision, exclude from such citizenship Indians who had never been in slavery, and who, by becoming *bona-fide* residents of States and Territories within the complete jurisdiction of the United States, had evinced a purpose to abandon their former mode of life and become a part of the people of the United States? If this question be answered in the negative, as we think it must be, then we are justified in withholding our assent to the doctrine which excludes the plaintiff from the body of citizens of the United States upon the ground that his parents were, when he was born, members of an Indian tribe. For, if he can be excluded upon any such ground, it must necessarily follow that the fourteenth amendment did not grant citizenship even to Indians who, although born in tribal relations, were, at its adoption, severed from their tribes, and permanent residents of States and Territories, subject to the complete jurisdiction, as well of the United States as of the State or Territory in which they resided.

Justice Harlan ends the dissenting opinion with this language: "Born, therefore, in the territory, under the dominion, and within the jurisdictional limits, of the United States, plaintiff has acquired, as was his undoubted right, a residence in one of the States, with her consent, and is subject to taxation and to all other burdens imposed by her upon residents of every race. If he did not acquire national citizenship on abandoning his tribe and becoming subject to the complete jurisdiction of the United States, then the fourteenth amendment has wholly failed to accomplish, in respect of the Indian race, what, we think, was intended by it; and there is still in this country a despised and rejected class of persons, with no nationality whatever; who, born in our territory, owing no allegiance to any foreign power, and subject, as residents of the States, to all the burdens of government, are yet not members of any political community nor entitled to any of the rights, privileges, or immunities of citizens of the United States."

Chinese born in the United States held Citizens.—An important question touching citizenship by birth under the fourteenth amendment came before the United States Circuit Court in California in September. It arose in the case of Look Tin Sing, a Chinese boy born in this country and claiming the right to land as a citizen. He was born in 1870 at Mendocino, Cal., where his parents, who were Chinese and subjects of the Emperor of China, had lived twenty years prior to this case. The boy went to China in 1879 and returned to California in September, 1884, when the port officers at San Francisco refused to let him land without the certificate required by the Chinese exclusion law. The Circuit Court held that he was a citizen of the United States under the fourteenth amendment, by reason of his birth in this country, and as a citizen had a right freely to go from and come to the United States. The language of the fourteenth amendment that "all persons born or naturalized in the United States and subject to the jurisdiction thereof, are citizens of the United States and of the State wherein they reside," was thus interpreted by Justice Field, of the Supreme Court, whose opinion was concurred in by Circuit Judge Sawyer and District Judges Sabin and Hoffman:

> This language would seem to be sufficiently broad to cover the case of the petitioner. He is a person born in the United States. Any doubt on the subject, if there can be any, must arise out of the words, "*subject to the jurisdiction thereof.*" These words were designed to cover the case of children born in the United States of persons engaged in the diplomatic service of foreign governments, such as ministers and embassadors, whose residence, by a fiction of public law, is regarded as a part of their own country. This ex-territoriality of their residence secures to their children born here all the rights and privileges which would inure to them had they been born in the country of their parents. They also cover the case of persons born on the public vessels of a foreign country, while within the waters of the United States, and consequently within their territorial jurisdiction. Such persons are considered as born in the country to which the public vessel belongs. They are not born, in the sense of public law, within the jurisdiction of the United States.
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> The language used has also a more extended purpose. The doctrine recognized in the United States is the right of every one to expatriate himself and choose, if he likes, another country. This right would seem to follow from the greater right recognized and proclaimed to the world in the immortal document in which the American colonies declared their independence and separation from the British crown, as belonging to every human being—God-given and inalienable—the right to pursue one's happiness. The English doctrine, that allegiance to the government of one's birth is perpetual, attending the subject wherever he goes, never has taken root in this country, although there are dicta in some judicial decisions that a citizen can not renounce his allegiance to the United States without the permission of the Government, under regulations prescribed by law; and this would seem to have been the opinion of Chancellor Kent when he published his commentaries. But a different doctrine prevails now. The naturalization laws have always proceeded upon the theory that any one can change his home and allegiance without the consent of his Government. And we adopt as our citizens those belonging to our race, who come from other lands and show attachment to our institutions, and desire to be incorporated with us. So profoundly convinced are our people of the right of these dwellers in other countries to change their residence and allegiance, that when once they are naturalized they are deemed entitled, with the native-born, to all the protection which the strong arm of the national Government can extend to them, wherever they may be, at home or abroad. And the same right, accorded to the people of other countries to become citizens here, is accorded to them and to the native-born, to change, if they choose, their allegiance from our Government

to that of other States. As to the position of the district attorney, that the restriction act excludes the reentry of the petitioner into the United States, even if he be a citizen, only a word is necessary. No citizen can be banished from his country except in punishment for crime. Banishment for any other cause is unknown to our laws, and beyond the power of Congress. The petitioner must be allowed to land, and it is so ordered.

Power to tax Immigrants.—The right of Congress to levy a head-tax on immigrants was affirmed by the United States Supreme Court in an opinion handed down December 8. In several previous cases the Court had declared unconstitutional State laws regulating immigration and taxing immigrants (see "Annual Cyclopædia" for 1882, p. 468). The ground of these decisions was that, as the subject pertains to foreign commerce, it is one on which a State has no right to legislate, for the reason that it falls within the exclusive jurisdiction of Congress. These were cases in which the constitutionality of State statutes was called in question. The court had not passed directly upon an act of Congress before the suits now under consideration. These were brought against the Collector of the Port of New York by certain steamship companies, which denied the constitutionality of the act passed by Congress in 1882, imposing upon the owners of steamers and vessels a tax of fifty cents for every alien brought to this country. The purpose of the tax was the care of immigrants and the protection of the country against the burdens of immigration. The steamship companies questioned the constitutionality of the act on these grounds: first, Congress had no power, under the commercial clause of the Constitution, to pass it; second, assuming that it was an exercise of the taxing power, the tax was not levied to provide for the common defense and general welfare of the United States, nor was it uniform throughout the United States; third, that it violated provisions contained in numerous treaties of the United States with friendly nations.

On the first point the Court, speaking through Justice Miller, said:

> The act of Congress is similar in its essential features to many statutes enacted by States of the Union for the protection of their own citizens and for the good of the immigrants who land at seaports within their borders.
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> That the purpose of these statutes is humane, is highly beneficial to the poor and helpless immigrant, and is essential to the protection of the people in whose midst they are deposited by the steamships, is beyond dispute. That the power to pass such laws should exist in some legislative body in this country is equally clear. This court has decided distinctly and frequently, and always after a full hearing from able counsel, that it does not belong to the States. That decision did not rest in any case on the ground that the State and its people were not deeply interested in the existence and enforcement of such laws, and were not capable of enforcing them if they had the power to enact them; but on the ground that the Constitution, in the division of powers which it declares between the States and the General Government, has conferred this power on the latter to the exclusion of the former. We are now asked to decide that it does not exist in Congress, which is to hold that it does not exist at all—that the framers of the Constitution have so worded that remarkable instrument, that the ships of all nations, including our own, can, without restraint or regulation, deposit here, if they find it to their interest to do so, the entire European population of criminals, paupers, and diseased persons, without making any provision to preserve them from starvation and its concomitant sufferings, even for the first few days after they have left the vessel.
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> This court is not only asked to decide this, but it is asked to overrule its decision, several times made with unanimity, that the power *does* reside in Congress, is conferred upon that body by the express language of the Constitution, and the attention of Congress called to the duty which arises from that language to pass the very law which is here in question.
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> That these statutes are regulations of commerce—of commerce with foreign nations—is conceded in the argument in this case; and that they constitute a regulation of that class which belongs exclusively to Congress is held in all cases in this court. It is upon these propositions that the court has decided in all these cases that the State laws are void.
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> It can not be said that these cases do not govern the present, though there was not then before us any act of Congress whose validity was in question, for the decisions rest upon the ground that the State statutes were void only because Congress, and not the States, was authorized by the Constitution to pass them, and for the reason that Congress could enact such laws, and for that reason alone, were the acts of the State held void. It was, therefore, of the essence of the decision which held the State statutes invalid, that a similar statute by Congress would be valid.

To the second objection the Court replied that a tax is uniform within the meaning of the Constitution when it operates with the same force and effect in every place where the subject of it is found. "The tax in this case, which, as far as it can be called a tax, is an excise duty on the business of bringing passengers from foreign countries into this by ocean navigation, is uniform, and operates precisely alike in every port of the United States where such passengers can be landed." As to the tax being for the general welfare of the United States, "it would not be difficult to show that it is so, and particularly that it is among the means which Congress may deem necessary and proper for that purpose. But the true answer to all these objections is, that the power exercised in this instance is not the taxing power. The burden imposed on the ship-owner by this statute is the mere incident of the regulation of commerce—of that branch of foreign commerce which is involved in immigration. The title of the act, 'An act to regulate immigration,' is well chosen. It describes, as well as any short sentence can describe it, the real purpose and effect of the statute. Its provisions, from beginning to end, relate to the subject of immigration, and are aptly designed to mitigate the evils inherent in the business of bringing foreigners to this country, as those evils affect both the immigrant and the people among whom he is brought and left to his own resources. It is true not much is said of protecting the ship-owner. But he is the man who reaps the profit from the transaction, who has the means to protect himself and knows well how to do it, and whose obligations in the premises need the aid of the statute for their enforcement. The sum demanded of him is not, therefore, strictly speaking, a tax or duty within the meaning of the Constitution. The money thus raised, though paid into the Treasury, is appropriated in advance to the uses of the statute, and does not go to the general support of the Government. It constitutes a fund raised from those who are engaged in the transportation of these passengers, and who make profit out of it, for the temporary care of the passengers whom they bring among us and for the protection of the citizens among whom they are landed. If this is an expedient regulation of commerce by Congress, and the end to be attained is one falling within that power, the act is not void, because, within a loose and more extended sense than was used in the Constitution, it is called a tax."

On the third point, the Court remarked that it was not satisfied that the act was in conflict with any treaty provisions, but that, if it had such effect, it must be held to supersede such provisions. (The views of the Court on this question are given in the article on the Treaty-making Power of the United States, in this volume.)

Police Power of the States.—I. *Prohibition Legislation.*—The right of a State to prohibit the manufacture and sale of intoxicating liquors was affirmed by the Supreme Court of the United States in an opinion handed down November 10. The statute in question was one passed by the Legislature of Kansas in 1881. The first section was:

> Any person or persons who shall manufacture, sell, or barter any spirituous, malt, vinous, fermented, or other intoxicating liquors, shall be guilty of a misdemeanor, and punished as hereinafter provided: *Provided, however*, That such liquors may be sold for medical, scientific, and mechanical purposes, as provided in this act.

It was contended, on one side, that this statute was repugnant to the Constitution of the United States. The Supreme Court held that the question had been decided by it in Bartemeyer *vs.* Iowa (18 Wallace's Reports, 129), and Beer Company *vs.* Massachusetts (97 U. S. Reports, 25), and it reaffirmed its decisions in these cases. In its opinion in the former case the Court said that there was nothing in the Federal Constitution, prior to the fourteenth amendment, limiting the right of a State to regulate, or even prohibit, the liquor-traffic. "Up to that time—the adoption of the amendment—it had been considered as falling within the police regulations of the States, left to their judgment, and subject to no other limitations than such as were imposed by the State Constitution, or by the general principles supposed to limit all legislative power. It has never been seriously contended that such laws raised any question growing out of the Constitution of the United States. But the case before us is supposed, by counsel of the plaintiff in error, to present a violation of the fourteenth amendment of the Constitution, on the ground that the act of the Iowa Legislature is a violation of the privileges and immunities of citizens of the United States, which that amendment declares shall not be abridged by the States; and that, in this case, it deprives him of his property without due process of law."

On the point whether making or selling of liquor is a privilege or immunity of citizenship, the Court said: "The weight of authority is overwhelming that no such immunity has heretofore existed as would prevent State legislatures from regulating and even prohibiting the traffic in intoxicating drinks, with a solitary exception. That exception is the case of a law operating so rigidly on property in existence at the time of its passage, absolutely prohibiting its sale, as to amount to depriving the owner of his property. A single case, that of Wynehamer *vs.* The People (3 Kernan, 486), has held that, as to such property, the statute would be void for that reason. But no case has held that such a law was void as violating the privileges or immunities of citizens of a State, or of the United States. If, however, such a proposition is seriously urged, we think that the right to sell intoxicating liquors, so far as such a right exists, is not one of the rights growing out of citizenship of the United States, and in this regard the case falls within the principles laid down by this court in the Slaughter-House Cases, 16 Wallace's Reports, 36."

Whether a liquor law deprives a person of his property, is a question which depends on the terms and effect of the statute. Whether a statute that deprives a person of his property does so "without due process of law," in violation of the fourteenth amendment, is a question that was not presented to, or decided by, the court in this case. On this point, the same Court, in the later case of Beer Company *vs.* Massachusetts (97 U. S. Reports, 32), said:

> If the public safety, or the public morals, require the discontinuance of any manufacture or traffic, the hand of the Legislature can not be stayed from providing for its discontinuance, by any incidental inconvenience which individuals or corporations may suffer. All rights are held subject to the police power of the State. We do not mean to say that property actually in existence, and in which the right of the owner has become vested, may be taken for the public good without due compensation. But we infer that the liquor in this case, as in the case of Bartemeyer *vs.* Iowa (18 Wallace, 129), was not in existence when the liquor law of Massachusetts was passed. Had the plaintiff in error relied on the existence of the property prior to the law, it behooved it to show that fact. But no such fact is shown, and no such point is taken. The plaintiff in error boldly takes the ground that, being a corporation, it has a right, by contract, to manufacture and sell beer forever, notwithstanding and in spite of any exigencies which may occur in the morals or the health of the community, requiring such manufacture to cease. We do not so understand the rights of the plaintiff. The Legislature had no power to confer any such rights. Whatever differences of opinion may exist as to the extent and boundaries of the police power, and however difficult it may be to render a satisfactory definition of it, there seems to be no doubt that it does extend to the protection of the lives, health, and property of the citizens, and to the

> preservation of good order and the public morals. The Legislature can not, by any contract, divest itself of the power to provide for these objects. They belong emphatically to that class of objects which demand the application of the maxim, *salus populi suprema lex;* and they are to be attained and provided for by such appropriate means as the legislative discretion may devise. That discretion can no more be bargained away than the power itself.

II. *The San Francisco Laundry Ordinance.*—In April, 1884, the Board of Supervisors of San Francisco passed an ordinance reciting that the indiscriminate establishment of public laundries and wash-houses endangered the public health and safety, prejudiced the welfare of the community, and depreciated the value of property in their neighborhood. It then enacted that it should be unlawful for any person to establish or carry on such business within certain designated limits of the city, without first having obtained prescribed certificates from the health officer and the Board of Fire Wardens. Its fourth section declares that "no person owning or employed in a public laundry, or wash-house, within the prescribed limits, shall wash or iron clothes within the hours of ten in the evening and six in the morning, or on any portion of Sunday." The fifth provides that no person engaged in the laundry business, within the limits, shall permit any one suffering from an infectious or contagious disease to lodge, sleep, or remain on the premises. Violation of the ordinance is made a misdemeanor punishable by fine or imprisonment, or both. Francis Barbier was convicted, under the fourth section, of washing and ironing clothes between ten o'clock at night and six in the morning. He was sentenced to jail for five days. He obtained from the Superior Court a writ of *habeas corpus*, and on the hearing claimed that the fourth section of the ordinance was in violation of the fourteenth amendment to the Federal Constitution, and also of certain sections of the State Constitution. The grounds on which this contention was based were: that the section discriminates between the class of laborers engaged in the laundry business and those engaged in other kinds of business; that it discriminates between laborers beyond the designated limits and those within them; that it deprives the petitioner of the right to labor, and, as a necessary consequence, of the right to acquire property; that it is not within the power of the Board of Supervisors of the City and County of San Francisco; and that it is unreasonable in its requirements. The Superior Court overruled these objections and dismissed the writ.

The case was appealed to the United States Supreme Court. In an opinion delivered Jan. 5, 1885, that tribunal held that it had no authority to pass upon the questions raised under the State Constitution, that its jurisdiction was limited to a consideration of the Federal question, whether the fourth section of the ordinance was in conflict with the fourteenth amendment. It decided that on this point the ordinance was constitutional. The reasons for this conclusion are thus set forth in the opinion of the Court, prepared by Justice Field:

> The fourth section, so far as it is involved in the case before the police judge, was simply a prohibition to carry on the washing and ironing of clothes in public laundries and wash-houses, within certain prescribed limits of the city and county, from ten o'clock at night until six o'clock in the morning of the following day. The prohibition against labor on Sunday is not involved. The provision is purely a police regulation within the competency of any municipality possessed of the ordinary powers belonging to such bodies. And it would be an extraordinary usurpation of the authority of a municipality, if a Federal tribunal should undertake to supervise such regulations. It may be a necessary measure of precaution in a city composed largely of wooden buildings like San Francisco that occupations in which fires are constantly required, should cease after certain hours at night until the following morning; and of the necessity of such regulations the municipal bodies are the exclusive judges; at least any correction of their action in such matters can come only from State legislation or State tribunals.
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> The same municipal authority which directs the cessation of labor must necessarily prescribe the limits within which it shall be enforced, as it does the limits in a city within which wooden buildings can not be constructed. There is no invidious discrimination against any one within the prescribed limits by such regulations. There is none in the regulation under consideration. The specification of the limits within which the business can not be carried on without the certificates of the health officer and Board of Fire Wardens is merely a designation of the portion of the city in which the precautionary measures against fire and to secure proper drainage must be taken for the public health and safety. It is not legislation discriminating against any one. All persons engaged in the same business within it are treated alike, are subject to the same restrictions, and are entitled to the same privileges under similar conditions.
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> The fourteenth amendment, in declaring that no State "shall deprive any person of life, liberty, or property without due process of law, nor deny to any person within its jurisdiction the equal protection of the laws," undoubtedly intended not only that there should be no arbitrary deprivation of life or liberty, or arbitrary spoliation of property, but that equal protection and security should be given to all under like circumstances in the enjoyment of their personal and civil rights; that all persons should be equally entitled to pursue their happiness and acquire and enjoy property; that they should have like access to the courts of the country for the protection of their persons and property, the prevention and redress of wrongs, and the enforcement of contracts; that no impediment should be interposed to the pursuits of any one except as applied to the same pursuits by others under like circumstances; that no greater burdens should be laid upon one than are laid upon others in the same calling and condition, and that in the administration of criminal justice no different or higher punishment should be imposed upon one than such as is prescribed to all for like offenses. But neither the amendment—broad and comprehensive as it is—nor any other amendment, was designed to interfere with the power of the State, sometimes termed its police power, to prescribe regulations to promote the health, peace, morals, education, and good order of the people, and to legislate so as to increase the industries of the State, develop its resources, and add to its wealth and prosperity. From the very necessities of society, legislation of a special character, having these objects in view, must often be had in certain districts, such as for draining marshes and irrigating arid plains. Special burdens are often

necessary for general benefits—for supplying water, preventing fires, lighting districts, cleaning streets, opening parks, and many other objects. Regulations for these purposes may press with more or less weight upon one than upon another, but they are designed, not to impose unequal or unnecessary restrictions upon any one, but to promote, with as little individual inconvenience as possible, the general good. Though, in many respects, necessarily special in their character, they do not furnish just ground of complaint if they operate alike upon all persons and property under the same circumstances and conditions. Class legislation, discriminating against some and favoring others, is prohibited, but legislation which, in carrying out a public purpose, is limited in its application, if within the sphere of its operation it affects alike all persons similarly situated, is not within the amendment.

In the execution of admitted powers unnecessary proceedings are often required which are cumbersome, dilatory, and expensive, yet, if no discrimination against any one be made and no substantial right be impaired by them, they are not obnoxious to any constitutional objection. The inconveniences arising in the administration of the laws from this cause are matters entirely for the consideration of the State; they can be remedied only by the State. In the case before us the provisions requiring certificates from the health officer and the Board of Fire Wardens may, in some instances, be unnecessary, and the changes to be made to meet the conditions prescribed may be burdensome; but, as we have said, this is a matter for the determination of the municipality in the execution of its police powers, and not a violation of any substantial right of the individual.

III. *The Tenement-House Cigar Law.*—One of the most important of recent opinions on the subject of the police power of States was rendered Jan. 20, 1885, by the New York Court of Appeals—the highest court of the State—in the tenement-house cigar case, in which it declared unconstitutional the statute passed by the Legislature of that State in the preceding May. This statute was entitled "An act to improve the public health by prohibiting the manufacture of cigars and preparation of tobacco in any form in tenement-houses." The act applied only to New York city and Brooklyn, where many thousands of persons make cigars in the tenement-houses in which they live. The opponents of the measure alleged that its purpose was not the promotion of the public health, but the protection of the tobacco-industries carried on in factories. Its leading sections were:

SECTION 1. The manufacture of cigars or preparation of tobacco in any form on any floor, or in any part of any floor, in any tenement-house, is hereby prohibited if such floor or any part of such floor is by any person occupied as a home or residence for the purpose of living, sleeping, cooking, or doing any household work therein.

SEC. 2. Any house, building, or portion thereof occupied as the home or residence of more than three families, living independently of one another, and doing their cooking upon the premises, is a tenement-house within the meaning of this act.

SEC. 3. The first floor of said tenement-house on which there is a store for the sale of cigars and tobacco shall be exempt from the prohibition provided in section 1 of this act.

A violation of the act was declared to be a misdemeanor, punishable by a fine of not less than ten nor more than one hundred dollars, or by imprisonment for not less than ten days and not more than six months, or by both such fine and imprisonment.

An act having the same end in view was passed by the Legislature in 1883, but it was set aside by the Court of Appeals on technical grounds. The statute of 1884 was so framed as to avoid such technical objections, and it went to the Court of Appeals on the direct question whether the Legislature had exceeded its constitutional powers in passing it. In an opinion prepared by Judge Earl, the Court unanimously held that it had. The statute, said the Court, makes it a crime for a cigar-maker in New York or Brooklyn to carry on a perfectly lawful trade in his own home, and he becomes a criminal for doing that which is perfectly lawful outside of the two cities and everywhere, so far as can be learned, in the whole world. He must either abandon the trade by which he earns a livelihood for himself and family, or, if able, procure a room elsewhere or hire himself out to another. He may choose to do his work where he can have the supervision of his family and their help; and such choice is denied him. He may desire the advantage of cheap production in consequence of his cheap rent and family help, and of this he is deprived. He may go to a tenement-house, and, finding no one living, sleeping, cooking, or doing any household work on one of the floors, hire a room on such floor to carry on his trade, and afterward some one may begin to sleep or do some household work on such floor, even without his knowledge, and he at once becomes a criminal in consequence of another's act. It is plain, therefore, that this law interferes with the profitable and free use of his property by the owner or lessee of a tenement-house who is a cigar-maker, and trammels him in the application of his industry and the disposition of his labor, and thus, in a strictly legitimate sense, it arbitrarily deprives him of his property and of some portion of his personal liberty. The constitutional guarantee that no person shall be deprived of his property may be thus violated without the physical taking of property for public or private use. If the Legislature has the power under the Constitution to prohibit the prosecution of one lawful trade in a tenement-house, then it may prevent the prosecution of all trades therein. So, too, one may be deprived of his liberty and his constitutional right thereto be violated without the actual imprisonment or restraint of his person. All laws which impair or trammel these rights, which limit one in the choice of his trade or his profession, or confine him to work or live in a specified locality, or exclude him from his house or restrain his otherwise lawful movements (except in police regulations), are infringements on his fundamental rights of liberty.

Of the claim that the Legislature can pass such an act in the exercise of the police power of a sovereign State, the Court says: "Under the police power the conduct of an individual and the use of property may be regulated so as to interfere to some extent with the freedom of the one and the enjoyment of the other; and, in cases of great emergency, property may be taken and destroyed without compensation, and without what is commonly called due process of law. The limit of the power can not be accurately defined, and the courts have not been able or willing definitely to circumscribe it. But the power, however broad and extensive, is not above the Constitution. When it speaks, its voice must be heeded. It furnishes the supreme law, and, so far as it imposes restraints, the police power must be exercised in subordination thereto. If this were otherwise, the power of the Legislature would be practically without limitation; in the assumed exercise of the police power in the interest of the health, the welfare, or the safety of the public, every right of the citizen might be invaded and every constitutional barrier swept away. Generally it is for the Legislature to determine what laws and regulations are needed to protect the public health and secure the public comfort and safety; and while its measures are calculated, intended, convenient, and appropriate to accomplish the ends, the exercise of its discretion is subject to review of the courts. If it passes an act ostensibly for the public health, and thereby destroys or takes away the property of a citizen or interferes with his personal liberty, it is for the courts to scrutinize the act and see whether it really relates to and is convenient and appropriate to promote public health."

In considering the relation of the Tenement-House Cigar Act to the public health, the Court says that the law deals mainly with the preparation of tobacco and the manufacture of cigars, and its purpose obviously was to regulate them. Tobacco is used in some form by a majority of the men in this State, and its manufacture into cigars is permitted without any hindrance except for revenue purposes in all civilized lands. The opinion then proceeds as follows:

> It has never been said, so far as we can learn, and it was not affirmed in the argument before us, that its preparation and manufacture into cigars were dangerous to the public health. We are not aware, and are not able to learn, that tobacco is even injurious to the health of those who deal in it, or are engaged in its production or manufacture. We certainly know enough about it to be sure that its manipulation in one room can produce no harm to the health of the occupants of other rooms in the same house. To justify this law it would not be sufficient that the use of tobacco may be injurious to some persons, or that its manipulation may be injurious to those who are engaged in its preparation, but it would have to be injurious to the public health. This law was not intended to protect the health of those engaged in cigar-making, as they are allowed to manufacture cigars everywhere except in the forbidden tenement-houses. It can not be perceived how the cigar-maker is to be improved in his health or his morals by forcing him from his home and its hallowed associations and beneficent influences to ply his trade elsewhere. It was not intended to protect the health of that portion of the public not residing in the forbidden tenement-houses, as cigars are allowed to be manufactured in private houses, in large factories and shops in the two crowded cities, and in all other parts of the State. It was not intended to improve or protect the health of the occupants of tenement-houses, because the law does not apply when but three families, no matter how numerous and gregarious, occupy the houses.
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> It is plain that this is not a health law, and that it has no relation whatever to the public health. Under the guise of promoting the public health, the Legislature might as well have banished cigar-making from all the cities of the States, or confined it to a single city or town, or have placed under a similar ban the trade of a baker, of a tailor, of a shoemaker, of a wood-carver, or of any other of the innocent trades carried on by artisans in their own homes. The power would have been the same, and its exercise, so far as it concerns fundamental constitutional rights, could have been justified by the same arguments. Such legislation may invade one class of rights to-day and another to-morrow, and if it can be sanctioned under the Constitution, while far removed in time, we shall not be far away in practical statesmanship from those ages when governmental prefects supervised the building of houses, the raising of cattle, the sowing of seed and reaping of grain, and governmental ordinances regulated the movements and labor of artisans, the rate of wages, the price of food, the diet and clothing of the people, and a large range of other affairs, long since, in all civilized lands, regarded as outside of governmental functions. When a health law is challenged in the courts as unconstitutional, on the ground that it arbitrarily interferes with personal liberty and private property without due process of law, the courts must be able to see that it has, at least in fact, some relation to the public health, that the public health is the end actually aimed at, and that it is appropriate and adapted to that end. This we have not been able to see in this law, and we must, therefore, pronounce it unconstitutional and void.

Employers' Liability.—Though not on a question of constitutional law, one of the most important opinions rendered by the United States Supreme Court during the year was that announced December 8, touching the liability of employers for death or injury caused to one employé by the negligence of another. The law on this point has not been uniformly settled, either in the United States or in England. But in both countries there has been a strong current of judicial authorities recognizing and affirming the principle that an employer, while liable to a stranger, is exempt from liability to his own servants for injuries caused by the negligence of an employé. Thus, when any passengers or persons not in the company's service are killed or injured by a railroad accident, due to negligence on the part of the road's servants, the corporation is liable in damages; but, if any of its own employés are killed or injured, it is not liable if the accident resulted from the negligence of a fellow-servant. This distinction has been based on the theory that every employé must be presumed voluntarily to accept the ordinary risks of the service that he undertakes, and that his compensation is fixed with that end in view, while no such risk, it is claimed, is assumed by a passenger. It is further contended that the company's liability to passengers is created by an implied contract to carry them safely, which does not exist between the company and its servants. To this the reply is made that workmen no more assume the risk of accidents arising from the carelessness of other servants than do passengers, and that the principle of liability to passengers is not based on contract, but is an arbitrary rule of law, since the liability of the company extends in many cases to those who are not passengers, and with whom it has no contract. "There is another reason," says the United States Supreme Court, "often assigned for this exemption, that of a supposed public policy. It is assumed that the exemption operates as a stimulant to diligence and caution on the part of the servant for his own safety as well as that of his master. Much potency is ascribed to this assumed fact by reference to those cases where diligence and caution on the part of servants constitute the chief protection against accidents. But it may be doubted whether the exemption has the effect thus claimed for it. We have never known parties more willing to subject themselves to dangers of life or limb, because, if losing the one or suffering in the other, damages could be recovered by their representatives or themselves for the loss or injury. The dread of personal injury has always proved sufficient to bring into exercise the vigilance and activity of the servant." The doctrine of the employer's exemption was advanced for the first time in the United States by the Supreme Court of South Carolina in 1841 (Murray *vs.* Railroad Company, 1 McMullan's Reports, 385), and in the following year it was approved in an elaborate opinion by Chief-Justice Shaw, of the Massachusetts Supreme Court (Farwell *vs.* Boston and Worcester Railroad Company, 4 Metcalf's Reports, 49). It was first distinctly announced in England in 1850, but it did not become a settled principle of law in that country until 1858, when it was affirmed by the House of Lords (Bartonshill Coal Company *vs.* Reid and same Company *vs.* McGuire, 3 Macqueen's House of Lords cases, 266, 300). The principle has been affirmed and recognized by numerous decisions since rendered in England and in the United States. A very comprehensive meaning has been given to "common employment" and "fellow-servants." Under these decisions it is difficult to limit the doctrine so as to say that any persons employed by a railway company, whose labors may contribute to the running of its trains, are not fellow-servants, however widely separated their duties. On the other hand, there are many decisions in this country restricting the employer's exemption from liability to cases where the fellow-servants are engaged in the same department, and act under the same immediate direction; and holding that within the reason and principle of the doctrine, only such servants can be considered as engaged in the same common employment.

The case just decided by the United States Supreme Court was Ross *vs.* The Chicago, Milwaukee, and St. Paul Railway Company. The plaintiff was an engineer on a freight-train, and had been injured by a collision with a gravel-train, caused by the negligence of the conductors on the two trains. The court held that the company was liable. It based its decision on the ground that the engineer and conductors, though employés of the same company, were not fellow-servants. The principles that it affirmed will impose an important limitation upon the prevalent doctrine of the courts, relating to the liability of employers. The opinion was written by Justice Field. The rule laid down and the reasons for it appear in the following passage:

> It is not essential to the decision of the present controversy to lay down a rule which will determine, in all cases, what is to be deemed a common employment, even if it were possible to do so.
>
> There is, in our judgment, a clear distinction to be made, in their relation to their common principal, between servants of a corporation, exercising no supervision over others engaged with them in the same employment, and agents of the corporation, clothed with the control and management of a distinct department, in which their duty is entirely that of direction and superintendence. A conductor, having the entire control and management of a railway train, occupies a very different position from the brakeman, the porters, and other subordinates employed. He is in fact and should be treated as the personal representative of the corporation, for whose negligence it is responsible to subordinate servants. This view of his relation to the corporation seems to us a reasonable and just one, and it will insure more care in the selection of such agents, and thus give greater security to the servants engaged under him in an employment requiring the utmost vigilance on their part, and prompt and unhesitating obedience to his orders. The rule which applies to such agents of one railway corporation must apply to all, and many corporations operate every day several trains over hundreds of miles at great distances apart, each being under the control and direction of a conductor specially appointed for its management. We know from the manner in which railways are operated, that, subject to the general rules and orders of the directors of the companies, the conductor has entire control and management of the train to which he is assigned. He directs when it shall start, at what speed it shall run, at what stations it shall stop, and for what length of time, and everything essential to its successful movements, and all persons employed on it are subject to his orders. In no proper sense of the terms is he a fellow-servant with the fireman, the brakeman, the porters, and the engineer. The latter are fellow-servants in the running of the train under his direction, who, as to them and the train, stands in the place of and represents the corporation. As observed by Mr. Wharton, in his valuable treatise on the "Laws of Negligence": "It has sometimes been said that a corporation is obliged to act always by servants, and that it is unjust to impute to it personal negligence in cases where it is impossible for it to be negligent personally. But if this be true, it would relieve corporations from all liability to servants. The true view is, that as corporations can act only through superintending officers, the negligences of those officers with respect to other servants are the negligences of the corporation." (§ 232 *a.*)
>
> There are decisions in the courts of other States, more or less in conformity with those cited from Ohio and Kentucky, rejecting or limiting to a greater or less extent the master's exemption from liability to a servant for the negligent conduct of his fellows. We agree with them in holding—and the present case requires no further decision—that the conductor of a railway train, who commands its movements, directs when it

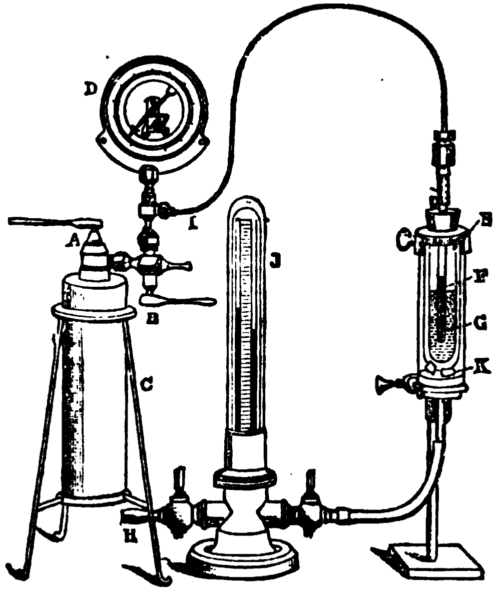
shall start, at what stations it shall stop, at what speed it shall run, and has the general management of it, and control over the persons employed upon it, represents the company, and therefore that for injuries resulting from his negligent acts the company is responsible. If such a conductor does not represent the company, then the train is operated without any representative of its owner.

From this opinion four of the nine justices —Bradley, Matthews, Gray, and Blatchford—dissented. "We think," they said, "that the conductor of the railroad train in this case was a fellow-servant of the railroad company with the other employés on the train. We think that to hold otherwise would be to break down the long-established rule with regard to the exemption from responsibility of employers for injuries to their servants by the negligence of their fellow-servants."

In 1880 an act was passed by Parliament in England "to extend and regulate the liability of employers to make compensation for personal injuries suffered by workmen in their service." It does not set aside entirely the rule that has grown up in the courts, but in certain specified cases it abolishes the distinction between a workman and a stranger by making employers liable to both on equal terms. Efforts to secure similar legislation have been made in New York, Massachusetts, and some other States, but without success.

LEMON-JUICE. See Drugs, New.

LIQUEFACTION OF GASES. The experiments of MM. Cailletet and Raoul Pictet on the liquefaction of gases, and the apparatus they employed, were described in the "Annual Cyclopædia" for 1877. The processes have since been much improved, the apparatus simplified, and more complete results obtained. M. Cailletet, having failed to liquefy hydrogen under a pressure of one thousand atmospheres, concluded that the result could not be accomplished by pressure alone, and was led to the discovery of a fundamental property of gases that had been overlooked. Andrews, experimenting on the compression of carbonic acid at 13° C., found that the rate of condensation increased more rapidly than Mariotte's law demanded, and progressively; and that, at fifty atmospheres, the gas suddenly became a distinct liquid. At 21° C. the same result was produced more slowly, and seemed to be accompanied by a kind of preparatory stage of more rapid condensation from some time before the beginning of the change. At 32° C. the signs of preparation were more marked, but instead of a distinct liquid, only wavy mobile striæ appeared on the sides of the vessel; while at higher temperatures there were neither striæ nor liquefaction. The temperature of 32° C., therefore, marks a division between the temperatures which permit and those which prevent liquefaction, or is the *critical point*, for carbonic acid. While a liquid usually has a greater density than its vapor, it may be heated in a closed vessel till it becomes as rare, or rarer. At the same time the vapor accumulating over it becomes more dense. When the densities of the two have become the same, the line of separation between them will be obliterated; they will be no longer distinguishable, and they may be described as being in the gaso-liquid state. All previous attempts to liquefy air had failed, because they had been made at temperatures above the critical point, while the matter was still in the gaso-liquid state. Cailletet and Pictet obtained their success by reducing the temperature to below the critical point and applying extreme pressure.



The liquefaction was, however, still not complete, for the gases had not yet been seen collected in a static condition and separated from their vapors by the clearly defined concave surface which is called a *meniscus.* A more powerful refrigerant than had yet been applied was found in the hydrocarbon ethylene, which when liquefied boils at −103° C. MM. Wroblewski and Olzewski, of Cracow, with M. Cailletet's apparatus, in April, 1883, by the ebullition of liquid ethylene obtained a temperature of −150° C., and reduced oxygen, previously compressed, to a fixed liquid, with a clearly defined meniscus. Its critical point was marked at −113° C., and it boiled rapidly at −186° C. Nitrogen was liquefied, under a pressure of thirty-six atmospheres, at −146° C. M. Cailletet simplified the process by introducing formene, or marsh-gas, as a refrigerant which, although less easily liquefied than ethylene, will produce by its ebullition in the air, without the necessity of creating a vacuum, a temperature of −160° C., under which both gases are liquefied. In July, 1884, M. Olzewski announced that he had produced by the ebullition of liquid nitrogen in a vacuum a temperature of —213° C., and obtained liquid hydrogen. Contrary to the expectations founded on the ordinary metallic behavior of hydrogen that the liquid would present the appearance of a molten metal like mercury, it exhibited the mobile behavior and the transparency of the hydrocarbons.

Prof. James Dewar, of London, has pointed out that he suggested the use of marsh-gas a year before the experiments of M. Cailletet and M. Wroblewski, having proposed it as a convenient substance for producing an exceedingly low temperature, in a communication made to the British Association meeting of 1883.

Prof. Dewar has devised an apparatus for producing liquefaction, which he recommends as convenient for the purposes of lecture demonstration, and as allowing the condensation of comparatively large quantities of liquid oxygen. It is shown in the engraving. The oxygen or air reservoir, C, is made of iron, and may contain gas compressed to 150 atmospheres. A is the stop-cock for regulating the pressure of the gas in the glass tube F; the copper tube which connects the gas-reservoir C and the glass tube F is shown at I; while D is the pressure-manometer. The air-pump gauge is marked at J. H is the point of attachment leading to the air-pump. The glass test-tube G, which contains the liquid ethylene, solid carbonic acid, or liquid nitrous oxide, which is to be boiled *in vacuo*, is placed in the middle of a larger tube, and has holes, shown at E, in the upper part, so that the cool vapors in their course to the air-pump are forced to pass around the outside of the vessel and help to guard it from external radiation. The lower part of the outer cylinder is covered with pieces of chloride of calcium shown at K. The stop-cock B is used for collecting the gas yielded by the fluid and condensed vapor. The tube F is five mm. in diameter and about three mm. thick in the walls, and when filled with fluid oxygen (for projection) holds at least 1·5 cubic centimetre. This is sufficient to show the ebullition of the fluid at ordinary pressure, and to demonstrate the great reduction of temperature attendant on the change of state. The liquefaction of oxygen may also be produced by the use of solidified carbonic acid or liquefied nitrous oxide, substances which can be obtained abundantly in their gaseous condition, and are therefore more convenient in practice than ethylene, which is troublesome to make in quantity.

LITERATURE, AMERICAN, IN 1884. The number of books published in the United States in 1884 shows a material increase over the aggregate of 1883, which amounts to about 20 per cent. In quality and value the product of distinctively American works is not such as to inspire any marked degree of pride in any increased activity or appearance of American genius. The energy of the publisher has been largely directed both to cheap reprints and new editions of standard authors. Many distinguished writers, both in England and the United States, have "gone over to the majority," and eminent living authors have hardly shown the same productiveness as in former years. In the highest lines of intellectual work, science and mental and moral philosophy, the record is the least encouraging, though the year was not without its notable productions. Poetry is represented by a few names only that the general reader will recognize. History and travel are represented by inferiority both in amount and quality; while in biography and political and social science there was a manifest advance not only in number of books issued but in character, several of them having been notably good and likely to prove permanent additions to standard literature. The departments in which America was specially prolific were fiction, theology, law, medical science, juvenile literature, and educational text-books. It goes without saying that the bulk of the new books of 1884, like that of preceding years, was of ephemeral value. Activity was displayed by publishers rather than by authors, if we exclude from the latter class mere compilers and editors and strictly professional men.

We give the total number of books published during the year 1884 in the United States, classified and compared with those of 1883, in the following summary taken from the "Publishers' Weekly," which probably closely approximates correctness. This list, it may be added, includes reprints of foreign books, as well as works by American authors, but an attempt will be made to distinguish carefully between these in the brief record and comment that will be found in this article:

CLASS OF LITERATURE.	1883.	1884.
Fiction	670	943
Law	397	455
Theology and Religion	375	390
Juvenile Books	331	358
Education, Language, etc	197	227
Poetry and Drama	164	222
Medical Science, Hygiene, etc.	211	209
Literary History and Miscellany	158	186
Biography, Memoirs, etc.	161	178
Social and Political Science	106	168
Useful Arts	146	154
Description, Travel, etc.	155	136
Physical and Mathematical Science	90	134
History	119	115
Fine Arts and Illustrated Books	75	81
Sports and Amusements	22	51
Domestic and Rural Economy	22	48
Humor and Satire	47	29
Mental and Moral Philosophy	15	19
Total	3,481	4,088

It will be seen from this list that the increase in number of books published was 607, the only decrease being in the divisions of medical science, hygiene, etc., in description and travel, in history, and in humor and satire.

Fiction.—Among the novels of the year, perhaps "Dr. Sevier," by G. W. Cable, may be given a leading place. It is characterized by the same quaint delineations of creole life and character that made his previous books so noticeable. Two novels were written by F.

Marion Crawford, "A Roman Singer" and "An American Politician." The former was a striking love-story freshly treated, but in the latter the author tries his skill with much less successful hand in describing and satirizing political life and methods in the United States. Charles Egbert Craddock (the pen-name of Miss Mary N. Murfree) became widely known through the story, "Where the Battle was Fought," with its realistic descriptions of mountain-life and peculiar Southern types. Mrs. Helen Hunt Jackson's "Ramona" was a picture of life in southern California, noticeable as a protest against the treatment of the Indian. Miss Maude Howe's "The San Rosario Ranch" was a less tragic picture of rural Californian life. "The Fate of Mansfield Humphreys," by Richard Grant White, was a bright satire on English misconception of Americans; and George Parsons Lathrop produced a spirited picture of Newport fashionable life in "Newport." Julian Hawthorne was represented by "Beatrix Randolph," "Archibald Malmaison," and "Noble Blood," none of which was peculiarly noticeable. Among the novels of special merit was "The Making of a Man," a posthumous work by Rev. Wm. M. Baker, a book of more than ordinary cleverness. As even more noticeable than this may be mentioned Howe's "Story of a Country Town," one of the most successful "first" books of recent years, which was distinguished by its vivid realism and power to make ordinary things attractive. Edgar Fawcett's society novels, "The Adventures of a Widow" and "Tinkling Cymbals," were not devoid of interest, though burdened with a labored style and somewhat forced satire. Another of this author's novels, "Rutherford," was reprinted from an earlier edition. Miss Sara Orne Jewett's "Country Doctor" attracted deserved attention by its nice characterization and delicate touch. A novel of great length by Admiral David D. Porter was issued in serial monthly parts, the revival of an old form made famous by Dickens and other writers of half a century since. This was entitled "Allan Dare and Robert Le Diable" and was of a very romantic and sensational character. The well-known popular writer E. P. Roe was represented in "Nature's Serial Story" and "A Young Girl's Wooing." Noticeable work in fiction was done by Dr. William A. Hammond, the well-known specialist in nerve-diseases, and by Dr. Weir Mitchell. The former, in "Lal" and "Doctor Grattan," not only found an effective vehicle for physiological theories, but succeeded in telling striking stories. Dr. Mitchell's "In War Time" made a distinct impression as a strong exhibition of character analysis. N. C. Kouns followed up the success of "Arius the Libyan" with "Dorcas," a story of early Christian life in Rome. A clever story of Southern life in the early part of the century was told in Johnson's "Old Mark Langton"; and another still more noticeable delineation of old Southern life was given in "The Entailed Hat," by George Alfred Townsend, the scene being laid in Maryland and Virginia, and turning largely on the kidnapping of negroes. Additions to the "No-name Series" were "Almost a Duchess" and "Diane Coryval," both of them tales of French life. The "American Novel Series" was begun early in the present year, and included several works of interest (the best of them being the first two named): Arlo Bates's "The Pagans," Miss Compton's "Esther," "A Latter-Day Saint," "Stratford by the Sea," and "Among the Chosen." Robert Grant's novel, "An Average Man," attracted some attention, and J. S. of Dale justified an earlier success, "Guerndale," in "The Crime of Henry Vane." "Vestigia," by Miss Julia Fletcher, was a story of recent Italian life, marked by vivid description and good delineation of character. Other works of some interest were "Phœbe," by the author of "Rutledge"; Miss Johnson's "Fainalls of Tipton," Mrs. Kirk's "A Midsummer Madness," Miss Townsend's "But a Philistine," Miss Amanda Douglass's "Out of the Wreck," Edward Everett Hale's "Fortunes of Rachel," Picard's "A Matter of Taste," and Orpheus C. Kerr's story of Borneo under the *régime* of Rajah Brooke, entitled "There was once a Man." Many volumes of short stories were issued, such collections having been the fashion with publishers. These were Henry James's "Tales of Three Cities," W. H. Bishop's "Choy Susan," Bret Harte's "On the Frontier," Joel Chandler Harris's "Wings," G. P. Lathrop's "True," Deming's "Tompkins," Miss Sally McLean's "Some Other Folks," Charles Egbert Craddock's "In the Tennessee Mountains," Frank Stockton's "The Lady or the Tiger," Sherwood Bonner's "Suwanee River Stories," and eight volumes of "Stories by American Authors," the latter being the supposed best short stories published in the American magazines during the last twenty years. Among American reprints of English books there were a good many striking novels. Those specially worthy of mention were William Black's "Judith Shakespeare"; Anthony Trollope's "An Old Man's Love," and Charles Reade's "A Perilous Secret," both posthumous works; Wilkie Collins's "I Say No"; Blackmore's "Tommy Upmore," a parliamentary satire; Florence Warden's (a hitherto unknown writer) "House on the Marsh," "At the World's Mercy," and "Deldee," all of them books of strong sensational interest and of large sale; Hugh Conway's "Called Back" and "Dark Days," the former of which in popularity was one of the leading novels of the year, both published in the "Leisure Hour Series"; Jessie Fothergill's "Peril," published in the same series; Mrs. L. B. Walford's "The Baby's Grandmother," one of the most charming novels of recent years; "The Millionaire," published anonymously, but afterward acknowledged by Louis J. Jennings, the Anglo-American journalist, the hero of which was a Wall Street speculator and railway magnate. Miss Mulock's "Miss Tommy," a quaint love-story; Ouida's "Princess Napraxine," a customary outburst of full-blown imagination; "Doris," by the "Duchess," a lively story of Irish life; Mrs. Oliphant's "Old Lady Mary," "Sir Tom," "Hester," and "The Wizard's Son," the former of these being one of the most unique and touching ghost-stories written in recent years; Miss Braddon's "A Splendid Misery," and "An Ishmaelite"; William Clarke Russell's "Jack's Courtship," "Round the Galley-Fire," "John Holdsworth," and "Little Loo," all of them admirable sea-stories, by an author who has made a brilliant reputation in this vein; F. W. Robinson's "The Man She Cared For," and "A Fair Maid"; Walter Besant's "Dorothy Foster," an historical story of the Jacobite rising of 1715 in England; Miss Charlotte Yonge's "Armorer's Prentices," a story of the Tudor age; Robert Buchanan's strong and painful "The New Abelard," the name of which betokens its motive; W. E. Norris's "Thirlby Hall," a bright and clever tale; and James Payn's "The Canon's Ward" and "The Talk of the Town," the latter of these being based on the celebrated Shakespearean forgeries of Joseph Ireland. Other English novels of some note reprinted here were Francillon's "A Real Queen," David Christie Murray's "The Way of the World," Miss Jephson's "An April Day," Oswald Crawford's "The World We Live In," Mrs. Riddell's "Susan Drummond," Harwood's "One False, Both Fair," "Pretty Miss Neville," Mrs. Spendor's "Miss Nobody," Miss Betham Edwards's "Love and Mirage," Miss Notley's "Red Riding Hood," and Hesba Stretton's "Carola." There were many translations of readable foreign novels, the best of which will be given below: The "Surgeon's Stories," of Topelius, an interesting series of historical novels, were completed with "Times of Frederick I," "Times of Linnæus," and "Times of Alchemy." A fresh introduction was made to the American public of Vasmaer, of Holland, and Jokai, of Hungary, the "Amazon" of the former, and "The Modern Midas" of the latter, being quite striking books. Posthumous works of Turgenieff, "Mumu" and "Annouchka," hardly sustained the reputation of the great author. In French fiction the more prominent translations were Judith Gautier's "The Usurper," a Japanese romance; Ohnet's "The Master of the Forges"; and Zola's "Joys of Life." The Spanish of Galdos was represented by "Trafalgar," and the best among the translations from the German was Eckstein's "Prusias," a story of ancient Rome, and George Taylor's "Clytia," laid in mediæval life. Other translations from the German were Heimburg's "A Pennyless Girl," Haukel's "Mistress of Ibichstein," Raimund's "A Hard Heart," Streckfuss's "Quicksands," Zschokke's "Sylvester Night's Adventure," and Von Hillern's "Graveyard Flower."

History.—This is a line of literary work and research that is rarely other than well represented each year by the works of American authors. There were not a few works of prominence in the year 1884. Francis Parkman's "Montcalm and Wolfe" sustains the magnificent style and spirited elevation that have made this writer's works so delightful. The present completes the story of the French struggle for domination in North America, one of the most stirring and dramatic episodes in modern history. One would look far to find a more absorbing narrative than that which flows on under Parkman's pen. Another brilliant historical work was Eugene Schuyler's "Peter the Great," a biographical study in form, but more properly to be classed as history, as it relates the epic of a nation's civilization. Mr. Schuyler's long residence in Russia and the East, and preparations for this work, have borne excellent fruit in what will remain an American classic. In the exciting and interesting section of modern European history treated by Mr. Schuyler, he has found a congenial field for a mind well fitted for the work. Among the most important contributions, at least in length, were the four volumes of Hubert Howe Bancroft's "History of the Pacific Coast," the subdivisions being "California," the "Northwest," "Mexico," and "North Mexican States and Texas." This task, that of writing an exhaustive history of the peoples, ancient and modern, of the western region of our continent from Behring Strait to the Isthmus of Panama, is being pressed with vigor by Hubert Howe Bancroft. The new revised edition of George Bancroft's "History of the United States of America," a work that has become a classic, reached its third, fourth, and fifth volumes during the year, and it is to be presumed that the final touches and improvements of the venerable author have been added. One of the most important books issued in 1884 was Francis Parkman's "Montcalm and Wolfe." This constitutes the seventh volume of his series, "France and England in North America." It is the closing chapter in the brilliant colonial episode of France in the New World, and Mr. Parkman presents it with that clear-cut vigor and picturesqueness of treatment which have embalmed his historical studies in such an attractive form, and given him an exalted place in our literary Pantheon. A new and interesting line of studies is pursued by E. J. Lowell in "The Hessians." He comes boldly to the rescue of the fair fame of the German auxiliaries of Great Britain during our War of Independence. In pursuing his object, he appears to have neglected no means of arriving at the exact facts, and his conclusions would seem to indicate sincerity and good judgment. To the many histories of that fascinating epoch in the evolution of European civilization, the period of the Thirty Years' War, a fresh contribution has been added by the late United States Minister to Sweden, John L. Stephens. His history of Gustavus Adolphus, one of the greatest of European heroes, is really a history of the times that gave him birth and opportunity. It can hardly be said that the author has cast any fresh light on the life and achievements of the great Swedish king, but he presents a very clear and readable record of his career and of his influence as a factor in European politics. The occasion of the book's being was the author's long residence in Sweden, and the scholarly reader is somewhat disappointed that the book does not show more palpable fruits of original research. An addition to the literature of the late civil war was made in Col. Roman's "Military Operations of General Beauregard in the War between the States, 1861–'65." The author was a personal friend and staff-officer of Gen. Beauregard's, and presumably writes from the stand-point of friendship, but this strong coloring does not give enough bias to prevent the author from making an important contribution to a subject the literature of which is already becoming enormous. Other war histories, from the Federal stand-point, are Gen. James Fry's "Operations of the Army under Buell," and "McDowell and Tyler in the Campaign of Bull Run," while Stevenson's "Battle of Stone River" presents a picture of a battle and the campaign that preceded it worthy of the student's attention as a hitherto underrated portion of the great civil conflict. The "American Commonwealth" series has justly been regarded as one of the most important ventures of recent years. Each State is to some extent a community by itself, and with its colonial or territorial records furnishes in many cases a curious and individual history differing widely from its fellows, however similar it may now be in its nominal forms. The additions for 1884 were Shaler's Kentucky and Browne's Maryland. The latter is specially worthy of the student's attention in its account of the early institutions of Maryland, and their yet palpable influence on local habits. Young's "History of the Netherlands" was a not unsuccessful attempt to give a fresh presentation of the achievements of a people who contributed so many striking episodes to mediæval history. Though the names of Motley and Prescott are so brilliantly connected with this field of research, the author of this new study succeeds in showing good reason for his book's being. Yet it can not be said that he plucks a single leaf from the laurels of his predecessors. An interesting work was issued in Weise's "Discoveries of America to the Year 1525," giving a well-digested compendium of all that was known either in myth or in fact of this continent to the ancients, and to the early explorers and voyagers. The account of the Norse discoveries is very complete and well told. Among other historical works may be mentioned James Freeman Clarke's study of "Anti-Slavery Days," and Lieut. Bourke's ethnological sketch published under the title of the "Snake-Dance of the Moquis of Arizona." Gen. W. W. Loring gave, in his "Confederate Soldier in Egypt," some readable sketches of ancient and modern Egyptian history, interspersed with vivid pictures of manners and customs. The "Johns Hopkins Studies" of history, one of the most interesting series published in recent years, and peculiarly valuable as throwing light on local institutions and customs, received several valuable additions. Of American reprints of foreign historical works there are several worthy of passing mention in this connection. Green's "Conquest of England" was a fascinating book worthy of the works by the same author that preceded it. Justin McCarthy produced a very readable and well-written book in his "History of the Four Georges." Martel's "Military Italy" gave an account of the recent exploits and present resources of a power rapidly growing in strength and importance. One of the most timely and interesting histories of the year was the story of the "Coup d'Etat," translated from the French of De Maupas, Minister of Police under Napoleon III, one of the conspirators who helped in the perpetration of that crime. We get from this an inside view of the event, though, of course, strongly colored with apology and even justification. Prof. A. H. Sayce, of Oxford, gave the world, in his "Ancient Empires of the East," a work of great value, which embodied all the most recent fruits of scholarly research and criticism. The important revisions of opinion that extensive discoveries in archæology and philology have caused made a restatement necessary. One of the most important features of the book is the large place that the author gives to the empire of the Hittites, to which he ascribes an immense relative importance in the ancient civilization of the East. "Prehistoric America," by Marquis de Nadaillac, a French author, translated and published in this country, is a work of careful and enthusiastic scholarship which entitles it to be called one of the important historical productions of the year. It is a brilliant yet sound exposition of all the most trustworthy results of archæological labors in America. In Prof. Gindely's "Thirty Years' War" is found the most able, comprehensive, and perhaps accurate estimate ever made of the causes, course, and consequences of the events that immediately followed the German Reformation. The volumes are profusely illustrated with maps and engravings, and are worthy to be considered a final authority. Other important German works in history, translated and published in English, were the first part ("The Oldest Historical Group of Nations and the Greeks") of Leopold von Ranke's "Universal History," and Ploetz's "Epitome of Ancient, Modern, and Mediæval History." Lady Jackson added to her other volumes on French history "The Court of the Tuileries," which possesses the same qualities of bright and picturesque narrative as its predecessors, but it is rather a work for young people, and those who need a strong spice of amusement added to information, than a serious addition to literature.

Biography.—The additions to this fascinating branch of literature were numerous and notable in 1884. "The Life and Letters of Bayard Taylor," edited by his wife, was a work that aroused deserved interest and attention. The subject of the biography, though not ranking among the foremost men of genius, yet, by his great versatility, industry, ambition, and talent, secured a high place in American letters. He was greatly beloved as a man, and the record of his career has a distinct value as an admirable account of steady activity as poet, novelist, journalist, and traveler. His diplomatic experience was too brief to enter very largely into the important features of his life. The book in this department which, on the whole, attracted the greatest attention, and that not altogether from favorable causes, was Julian Hawthorne's "Nathaniel Hawthorne and his Wife." A good deal of hostile comment was called out by the bad taste of the writer in quoting his father's opinions concerning several well-known literary personages, especially Margaret Fuller. It was thought that the occasional bitterness of the elder Hawthorne's judgment was not necessary to be made known in order that the public should be able to understand what is really worth knowing about him. In other respects, the biography was noticeably good in plan and execution. Two excellent legal biographies of more than ordinary value and interest were contributed in Nielson's "Memoirs of Rufus Choate," and Shields's "Sergeant S. Prentiss," both records of extraordinarily brilliant men and able lawyers, who occupied a large share of public attention about the same time—one in the North, the other in the South. The "Life of Marcus Aurelius Antoninus," written for the first time in a spirit of real scholarly research, drew to the author, Paul Barron Watson, a young man recently graduated, a distinct share of approval from literary judges, and may be considered altogether an unusual "first" book in a line of serious writing. The additions to the "American Men of Letters Series" were two, both of them important. Oliver Wendell Holmes, as an intimate friend of Emerson, was admirably equipped to be his biographer, and brought to his work a genial and loving yet critical spirit. While he disappointed many of Emerson's worshipers, he has probably given the most truthful and judicial estimate yet taken of his place and influence as writer and thinker. Thomas Wentworth Higginson's "Margaret Fuller Ossoli," in the same series, is an interesting though somewhat exaggerated estimate of a woman who, in her time, filled a highly prominent place in the minds of literary and other thinking people. The "American Statesmen Series" was increased with "James Madison," by Sidney Howard Gay, and "John Adams," by John T. Morse, Jr. Both are sound and well-considered books, interesting alike from the characters of the men themselves, and from their relations to the important events and times in which they lived and moved. In the series, "Lives of American Worthies," John Habberton produced a humorous "Life of George Washington," which was cleverly executed, in a comic vein, without too much trenching on the reverence which it is the birthright of every properly constituted American to feel for the "Father of his Country." Dr. Marion Sims's "Story of my Life" was the record of a great career, simply and modestly told, and made interesting, not only to professional men, but to the general reader. Probably few fully understand how great a benefactor to the human race this remarkably gifted inventive surgeon was, unless they have read this autobiography. Gen. E. D. Townsend, First Assistant Adjutant-General during the war, was the author of "Anecdotes of the Civil War," an exceedingly readable collection of incidents, descriptions, sketches, and stories, many of them very fresh, concerning the troubled times, 1861–1865. A book, in a somewhat similar vein, though treated more elaborately, was "Fifty Years' Observations of Men and Events," by Gen. Erasmus D. Keyes, a very large portion of which related to the civil war. One of the great men, of whom people never tire of hearing and reading, was again made the subject of a biography in W. O. Stoddard's "Life of Abraham Lincoln," a book worthy to rank among the best accounts of the character and career of, perhaps, the most unique and picturesque personage in American history. Two readable additions to colonial and border history were made in "The Diary and Letters of Thomas Hutchinson," and Durrett's "John Filson." Lives of James and Lucretia Mott, and of Eliza P. Gurney, distinguished as philanthropists, were written by relatives. A brilliant young *littérateur*, who died a soldier's death in the late war, all too young for his own fame and the good of American letters, had his memory perpetuated in "A Life of Theodore Winthrop," written by his sister. J. Derby, an old New York publisher, gave a series of pleasant memories of authors and publishers in his "Fifty Years"; and Rev. Dr. Hatfield, under the title of "Poets of the Church," paid biographical tribute to the most distinguished hymnologists. Col. C. Chaillé Long, in his "Three Prophets," gave graphic sketches of Arabi Bey, El Maahdi, and Gordon Pasha, the three most important figures in the recent events in Egypt. Biographies of Martin Luther, by Mead and Seiss, attracted some attention. Under the title of "Captains of Industry," James Parton collected a group of those telling and readable sketches, originally published in the periodicals, of which he is such a master. To the above must be added the ephemeral biographies which always flourish so rankly during presidential-election years.

J. Clark Redpath, Charles Wolcott Balistier, W. Ralston Balch, H. J. Ramsdell, Ben Perley Poore, and Russell H. Connell, glorified the virtues and public services of Blaine and Logan; while a similar service was bestowed on Cleveland and Hendricks by Deshler Welch, Chauncey F. Black, Pendleton King, William E. Dorsheimer, and G. T. Ferris.

English biographical works reprinted in America included many noticeable books. First among these must be mentioned the concluding volume on Carlyle by James Anthony Froude, which covers his life in London from 1834 to his death in 1882, and, of course, includes the whole of his most important literary activity. The book is one of great interest, and gives us a revelation of Carlyle's literary and personal life, which leaves a sad feeling behind it in the bold revelation it makes of the weakness and selfishness of a man of genius. A very bright sketch of Luther was published by Mr. Froude the same year. A book inferior to none of recent years in interest of a widely varied character the public has found in the "Correspondence and Diaries of Right Hon. J. Wilson Croker." A prominent official, a man of great vigor both as writer and politician, the intimate of most of the distinguished men of his age, no recent book has been so full of entertaining matter, or thrown more light on English politics and statesmen for a period of nearly half a century. Croker had many strong enemies as well as warm friends, and his anecdotes and reminiscences, if often flavored with bitter malice, have a peculiarly racy flavor. James Payn's "Some Literary Recollections" and Edmund Yates's "Fifty Years of London Life" have also aroused considerable interest as vivid and lively portraitures of literary and other public men during a more recent period. The "Life and Times of the Reverend Sydney Smith," by John Reid, is more than a mere biography, like the three preceding works, in that it deals very largely in graphic pictures of the time in which the subject of the biography lived. The "Life of Reverend Frederick Denison Maurice," one of the most eminent of English churchmen, written by his son, Col. Maurice, yields to no work of the year in interest. Mr. Maurice exerted by his character and teaching an influence on the religious life of his day of a deep and far-reaching character. The life of Maurice had significance rather from its spiritual importance than from any external relation. A pleasant book is found in "Jane Austen's Letters," making a lively memento of a woman whose genius is an English classic. To the "English Men of Letters Series" were added Courthope's "Addison," Claude's "Bacon," and H. D. Traill's "Coleridge." The last-named book was of unusual interest, and a very suggestive and able monograph. Flint's "Vico" was added to the "Philosophical Classics Series"; the new volume of the "Great Musician Series" was Rockstro's "Mendelssohn," a very well planned and executed book; and in "Illustrated Biographies of Great Artists" we had Mottell's "Watteau," a painter better known to the few *dilettanti* and to connoisseurs than to the general world. The English additions to the "Famous Women Series," which is of an international character, were Mrs. Pitman's "Life of Elizabeth Fry," Vernon Lee's "Countess of Albany," and Miss Rennell's "Mary Wollstonecraft." Mrs. Fry's successful efforts to abolish the atrocities of English criminal law are well described by the author. The delineation of the conditions and characteristics of the time which produced the Italian dramatic poet, Vittorio Alfieri, by Vernon Lee, and her story of his strange relation with the wife and widow of Charles Edward, the Pretender, are very entertaining. The defense of Mary Wollstonecraft, wife of Godwin, the author of "Caleb Williams" and "Political Justice," and the mother of Shelley's wife, while it does not satisfy the judgment, yet largely palliates the errors of a woman who was at least as much sinned against as sinning. Nohl's "Life of Liszt" was translated from the German as an addition to the "Biographies of Musicians." The large part taken in recent events in Egypt by Gordon Pasha prompted two books, one Archibald Forbes's "Chinese Gordon," the other, by Egmont Hake, "Gordon in Central Africa." The "Biographical Sketch and Letters of Alice, Grand Duchess of Hesse," by her sister, Princess Christian, and "More Leaves from the Journal of a Life in the Highlands from 1862 to 1882," by Queen Victoria, were both received with interest. A new volume of essays was issued by Max Müller under the title of "Biographical Essays," which gave sketches of several of the leading German scientists. The German Boswell of Prince Bismarck, Dr. Moritz Busch, in "Our Chancellor," furnished a very readable but eulogistic account of his hero, which was translated into English. Henry Irving, the actor, was sketched by Joseph Hatton and Daly in books of some pretension, and Wolfe's "Sir Moses Montefiore" pictured the life of the Jewish centenarian and philanthropist. To the above works may be added Lord Ronald Gower's "Reminiscences," Samuel Smiles's "Men of Invention and Industry," Washburn's "Spanish Masters," Dobson's "Thomas Bewick and his Pupils," Bayle's "Richard Baxter," Anna Buckland's "Record of Ellen Watson," Haweis's "Musical Memories," Robertson's "John Bright," Hector Berlioz's "Autobiography," and Jean's "Creators of the Age of Steel," the two latter-named books being exceptionally interesting and well executed. Hector Berlioz shows that nature gave him as much talent for literature as it did for what he made the work of his life, music.

Travel.—In the literature of travel there were not very many notable books, though the year was not altogether wanting in interesting works of this description. Melville's "In the Lena

Delta" is worthy of the first place as a well-written account of a tragic and sensational chapter in Arctic adventure. The adventures of De Long and his comrades were hardly less remarkable than those of the more recent Greely episode. Frederick A. Ober was the author of a graphic description of "Travels in Mexico and Life among the Mexicans." A somewhat lengthened visit in the land of the Aztecs and unusually keen powers of observation joined to furnish the material of what is not only an attractive but what appears to be a trustworthy book. George W. Cable, in his "Creoles of Louisiana," if this work can properly be called a book of travel, gives a careful picture of the French and Spanish residents of New Orleans, and the region of which it is the immediate center, as also an interesting sketch of colonial history. Mrs. Bianciarde is responsible for a collection of racy papers under the name of "At Home in Italy," and Mrs. Julia Dorr writes pleasantly of Bermuda. Nourse's "American Explorations in Arctic Regions" is a compilation of the most interesting exploits of our countrymen in the Frozen Zone. Another rehearsal of the Arctic story was by McCormick, with a readable addition in the way of description of early feats of circumnavigation. W. D. Howells, in "Three Villages," gave a pleasant description of some New England townships, and illustrates anew the fact that the interest of things depends rather on what lies behind than in front of the eyes. Henry James gave similar studies of Old-World life, marked by much finish of style, in the books "Portraits of Places" and "Little Tour in France." John Burroughs, in "Fresh Fields and Pastures New," dealt in a bright and pleasant way with English life, and W. Falkner contributed a not very entertaining volume to the ever-swelling literature of the tourist in "Rapid Ramblings" over Europe. Dr. Henry M. Field was the author of an interesting record of travel in Syria and Palestine, under the name of "Among the Holy Hills."

The books reissued here from English and foreign sources offer a more attractive exhibit than those written by Americans. "John Bull and his Island," a vivacious and witty study of English life and people, by Max O'Rell, was one of the sensations of the year. Lady Brassey added to the literature of yachting adventure in a delightful volume, profusely illustrated, called "The Trades, the Tropics, and the Roaring Forties." The author is a born traveler, and has a knack of graphic and unaffected description which saves her readers from a single weary moment. Two other well-known Englishwomen also published books of travel. Miss Iza Duffus-Hardy related her impressions of North America in "Between Two Oceans"; Miss Gordon-Cumming, an indefatigable wanderer in strange places, wrote "In the Himalayas and on the Indian Plains." Mountain adventure in New Zealand had two delineations in Kerry-Nicholls's "King Country" and Green's "High Alps." Island-life in the Pacific was represented in Turner's "Samoa," and Johnstone's "Camping among Cannibals." To the multifarious record of African travel were added H. H. Johnston's "The River Congo," a region now assuming an international importance; Little's "South Africa"; "The Transvaal," by E. V. C.; and Dr. Williams's "The Soudan." Other books worthy of mention were Amicis's "Holland and its People," Barneby's "Life and Labor in the Far West," and Augustus C. Hare's studies of "Venice and Florence."

Poetry.—There is not very much to be said of the American production in this department of literary effort. In quantity the results have been great, in quality for the most part mediocre. The death of Longfellow, the diplomatic duties of James Russell Lowell, now for the good of literature happily released from official toil, and the silence of Mr. Whittier, have left the field to the younger poets. A fresh collection of Bayard Taylor's poems, under the name of "Melodies of Verse" (with no new addition, however), and an illustrated selection from the more popular poems of Dr. Oliver Wendell Holmes, attested the favor in which these poets are held. An interesting collection was given to the public of the "Poems of Sidney Lanier," many of which are exquisitely musical, edited with a memoir of the author, who was in many ways a singularly gifted man. H. J. Bunner's "Airs from Arcady" was the work of a graceful and dexterous hand, and Edgar Fawcett produced a new volume of verse under the title of "Later Poems." Miss Lucy Larcom's poems were issued in a new and complete edition, and Miss Phelps was represented in a thin volume, collected from her magazine and newspaper contributions. George Lunt's "Poems" was a collection of verse full of a quaint flavor, and Macy's "Legends and Lyrics" contained not a little good work. Of the large mass of amateur poetry issued, Clinton Scollard's "Pictures in Song" is alone worthy of note.

English poetry of note reissued here presents to us first of all Tennyson's powerful historical play of "Becket," which is distinguished by its strong dramatic characterization, though not fitted for the stage. "The Falcon and the Cup," by the same author, was also given to the world in book form. Robert Browning's poetic activity found outlet in "Ferishtah's Fancies," full of Oriental color and subtile thought. Mr. Swinburne's new volume was "A Midsummer Holiday," and the book showed no falling off in the author's peculiar gifts of technical execution. It may be added that Mr. Richard Henry Stoddard edited a volume of "Selections from Swinburne" with excellent literary taste. Among the minor English poets were "Songs Unsung," by Lewis Morris; "Wind Voices," by Philip Bourke Marston; and "Ballades and Verses Vain," a charming collection of *vers de société*, by Andrew Lang. There was also a good collection of poems issued under the attractive title of "Red-Letter Poems by English Men and Women." The above brief and meager record covers everything worthy of even passing mention.

General Literature.—Edgar Evertson Saltus was the author of a study of "Balzac," the great French novelist, marked by nice insight and thorough mastery of his subject, and presenting a somewhat different view of the author of the "*Comédie Humaine*" from that generally held. Charles Godfrey Leland's volume of American folk-lore, "Algonquin Legends of New England," was not only attractively written, but was a valuable addition to comparative mythology. Oliver Bell Bunce's "My House" was a graceful picture of an ideal country home and its surroundings; and Donald G. Mitchell's "Sheaf of Essays," bound together, showed this idol of a former generation in a light indicating that his hand had not lost its old cunning. Mrs. Emerson's "Indian Myths" and Gatschet's "Legends of the Creeks" were useful companion works to that of Mr. Leland named above. To those interested in Indian studies, the "Iroquois Book of Relics" and Dr. Brinton's "Aboriginal American Authors" also recommend themselves. Baldwin's "Book-Lover" was a pleasant little volume, and Adams's "Hand-Book of American Authors" was a fit companion to his "Hand-Book of British Authors," published last year. McCallum's "Studies in High and Low German Literature" made a very convenient hand-book for the literary student, and a similar work was edited by Lafcadio Hearn under the name of "Stray Leaves from Stray Literatures." The closing volumes of the "Complete works of William Cullen Bryant," edited by Parke Godwin, included his prose writings, which of course are far less significant in the public mind than are his poems.

In American reprints under this head, we find nothing of special value except George Eliot's "Essays and Leaves from a Note-Book," a collection of articles originally published in magazine form; Philip Gilbert Hamerton's "Human Intercourse," a wise and suggestive series of studies both genial and searching; Bain's "Practical Essays"; "The Enchiridion of Wit"; and Andrew Lang's "Custom and Myth."

Science. — The literary contributions to American science were not as many and noticeable as in the preceding year. John Fiske's "Excursions of an Evolutionist" was marked by the author's well-known characteristics of clear statement and suggestiveness. As indicated by the title, the book is made up of essays. His "Destiny of Man" was another publication in some sense complementing the preceding one, and entering into a study of the probabilities of the future of the race. The subject of evolution seems to have become the hinge on which leading scientific speculation swings. Dr. Coues was the author of an original and interesting speculation on life called "Biogen." President Alexander Winchell produced a series of intelligent and attractive papers well suited to strike the popular taste in his "Geological Excursions," and Prof. Shaler was responsible for a new and excellent text-book on "Geology." Meteorology was represented by Mr. Davis in a work entitled "Whirlwinds, Cyclones, and Tornadoes," and Basmett's "Earthquakes" treated a topic of general interest to intelligent readers, in the fact that such phenomena, among all those dangers which threaten humanity on the part of physical nature, are the most startling and dramatic. There were several books of what may be called familiar home science, peculiarly useful in the hints they give as to how easy it is to find matter of great interest and instruction in the things nearest our every-day life. These were Rev. Dr. McCook's "Tenants of an Old Farm," Dening's "Byways of Nature and Life," and "A Naturalist's Rambles about Home," by Charles C. Abbott. The latter two books were executed in a peculiarly attractive vein, and well calculated to stimulate the minds and sharpen the eyes of readers. Baldwin's "New England Orchids" and James's "North American Mosses" collated important observations in departments of botany in which people would commonly be interested. Dr. Elliot Coues published a new and revised edition of his "Key to North American Birds," which is recognized as a standard authority in ornithology. Among Government publications of more than ordinary interest were the "Annual Report of the United States Fish Commission" and the "Geological and Geographical Survey of the Territories." The second of the two parts of the latter gave a very full summary of the wonders of the Yellowstone valley, and both works issued were acknowledged by the scientific world abroad as worthy of the warmest commendation. It may be noticed that U. S. Government publications in science stand at the head of official scientific reports throughout the world for the thoroughness with which they are executed and the valuable results attained. Among scientific books, too, may be classed the concluding volume of "Appletons' Home-Books," published under the title of "Health at Home." J. Leonard Corning, M. D., was the author of an elaborate treatise on "Brain Exhaustion, with some Preliminary Considerations on Cerebral Dynamics." The results reached were drawn from direct clinical observation and deductions derived from physiology and experimental pathology. A valuable compend by Prof. Nathan Sheppard called "Darwinism as stated by Darwin Himself" gives passages from the writings of the most celebrated of modern naturalists, which by systematic arrangement are made to present in the clearest light the order and scope of Darwin's argument as to the origin and evolution of animals and men. Not least valuable among the issues of the year were the two bound annual volumes of "The Popular Science Monthly." An important new text-book was produced by Prof. John Trowbridge, of Harvard University, under the name of "The New Physics," being a manual of experimental study for advanced schools. Joseph Le Conte's "Compend of Geology" was the work of one of the best-known and most trustworthy scientific men in the country. A new work entitled "Elements of Zoölogy" was written by C. F. Holder and J. B. Holder, M. D., Curator of Zoölogy in the American Museum of Natural History in Central Park, New York. Attention may also be called to "The Elements of Chemistry," by Prof. F. W. Clarke, Chemist of the U. S. Geological Survey, and "The Essentials of Anatomy, Physiology, and Hygiene," by Dr. Roger S. Tracy, of the New York Board of Health. Dr. Barnard, in his "Metrological System of the Great Pyramid," effectively controverted the historico-astronomical theories of Piazzi Smyth. Campbell's description of the "Geological and Mineralogical Resources of the James River Valley" was a valuable addition to our knowledge of our own country.

Among the reprints of foreign books there are several scientific treatises that deserve mention. There were some valuable contributions to the electrical section of applied science, among which may be cited "A Practical Treatise on Electric Lighting," by J. E. H. Gordon; "A Physical Treatise on Electricity and Magnetism," by the same author; "The Electric Light, its History, Production, and Application," from the French of Alglave and Boulard, edited by C. M. Lungren; "Dynamo-Electricity, its Generation, Application, Transmission, Storage, and Measurement," by George B. Prescott; and "Electricity and the Electrical Telegraph," and "Bell's Electric Speaking Telephone," by the same author. The publication of these works sufficiently indicates the profound interest to-day in the various forms of applied electricity. "Descriptive Mineralogy" was treated by Hilary Bauerman, F. G. S., and a new volume of Roscoe's Chemistry by H. E. Roscoe, F. R. S., and C. Schorlemmer, F. R. S., continued a very elaborate work. To the above-named works on electricity may be added Hammond's "Electrical Light in our Homes," Swinton's "Principles and Practice of Electrical Lighting," Fahre's "History of Electric Telegraphy to 1837," and May's "Bibliography of Electricity and Magnetism." "Flowers and their Pedigrees," by Grant Allen, was not only full of scientific suggestion, but very fascinating in matter and style; and G. J. Romanes, in his "Mental Evolution in Animals," ably continued a discussion which has become widely associated with his name and special studies. Other works which may be named are Worthington Smith's "Diseases of Field and Garden Crops," Dr. H. C. Lang's "Butterflies of Europe," Sir Richard Owen's "British Fossil Reptiles," Prof. Romer's "Bone-Caves of Europe," and G. J. Hinde's "Fossil Sponges."

Politics, Economics, and Social Science. — The wide range of topics included in the above found varied and energetic discussion by American writers. First among these attention may be called to Lalor's "Cyclopædia of Political Science," the third volume of which was issued, completing an admirable compendium of articles written by American and foreign writers. Lieut. Kelly, U. S. N., took up the vexed and most important question of the building up of our merchant marine in a timely book, the "Question of Ships," in which he vigorously advocated "Free Trade and Free Ships." A course of lectures given at Cornell University, taking strong ground in favor of protection, by Hon. Ellis H. Roberts, were issued in book-form under the name of "Government Revenue." Henry George continued the radical contest opened in "Progress and Poverty" with a volume of essays, "Social Problems." In Crane's and Moses's "Politics" is found a well-digested and scholarly introduction to the study of comparative constitutional law. Fortune's "Black and White," by the editor of the organ of the colored race, the New York "Globe," illustrates the rapid expansion and improvement of the blacks in the South, and discusses also their relation to the problems of land, labor, and politics. The same theme was also treated by Albion W. Tourgee in "An Appeal to Cæsar," with all the force of the special pleader. Edward Bellamy, in "Our Way Out," sought to suggest the escape from the present difficulties of labor and trade. Albert Shaw's "Icaria" gave a description of a Western communistic experiment of some years ago, originally begun by a noble and wealthy Spaniard. Scudder's "Labor-Value Fallacy" was an interesting contribution to economics. Other noticeable studies in economics were Prof. W. G. Sumner's "Problems in Political Economy," Prof. Francis Walker's "Land and its Rent," and R. Bowker's "Work and Wealth." Prof. J. Laurence Laughlin added a valuable hand-book to the educational list in his edition of Mill's "Political Economy." A new edition of Albert E. Bolles's "Financial History of the United States, from 1774 to 1789," was issued. A series of essays, treating the different aspects of the woman question in Europe and America, was edited by Theodore Stanton, and issued in book-form. The first two volumes of "Twenty Years of Congress," by Hon. James G. Blaine, deserve special mention for the ability and fairness of their presentation of political history, and added largely to the author's great reputation. Among other works of an historical and argumentative character may be mentioned Judge Boutwell's "Why am I a Republican?" Eugene V. Smalley's "Brief History of the Republican Party," Flower's "History of the Republican Party," Patton's "Democratic Party," Stanwood's "History of Presidential Elections," and Blanchard's "Rise and Fall of Political Parties in the United States." Attention may be called to the very suggestive discussion of the question of intemperance in Gustafson's "The Foundation of Death," which is a cyclopædia of facts on this topic as well as a strong argument.

Among American reprints may be selected a trio of important works on one of the pressing problems of the day. Fraser Rae's "Contemporary Socialism" is an able historical sketch of the forms of socialism now prevailing in the theories and aspirations of the world, and H. M. Hyndman is the author of "The Historical Basis of Socialism in England." Greenland's "Coöperative Commonwealth" is another contribution to the same subject. W. H. Mallock reviews the theories of Henry George with his usual brightness in "Property and Progress," and uses the weapons of satire as well as those of logic. A translation of Prof. Laveleye's "Elements of Political Economy" was made by A. W. Pollard, of Oxford, and Walter Pollock is responsible for an essay on the "Land Laws." A new edition was issued of Thorold Rogers's "Six Centuries of Work and Wages."

Philosophy and Metaphysics.—This department of thought has had very few important additions during the last year, and none of these was by American writers. Mrs. Corson translated Janet's "Elements of Morals," a work ranking high in the philosophy of ethics. The school of philosophic pessimism was illustrated in the translations of the leading works of its two great lights. Schopenhauer's "World as Will and Idea" and Hartman's "Philosophy of the Unconscious" rank as two of the greatest recent statements of philosophical opinion, though they find but little following among American thinkers. To the above short list may be added a biographical sketch of Leibnitz, by Morz, and one of Vico, by Prof. Flint.

Theology and Religion.—This department was richer in American contributions than any other branch of intellectual thought. The concluding volume, "Persia," of the late Dr. Samuel Johnson's "Oriental Religions," a work projected and executed on a most elaborate plan, was issued. The survey given by Dr. Johnson of religious thought in the East, of its influence on Christianity, and of its connection with philosophical speculation in modern times, is comprehensive and masterly. In the Bohlen lectures of the year we have a work of a similar character, under the name of "The Continuity of Christian Thought," by Rev. A. V. Allen, tracing the evolution of religious history from the beginning of the Christian era. This may be regarded by the student as complementary to the former work. Dr. R. S. Storrs, one of the most scholarly among American clergy, in the "Divine Origin of Christianity," summed up with great ability the argument of Christian evidences. One of the sensations of the year in religious literature was Rev. Heber C. Newton's "Book of Beginnings," containing the author's interrupted course of lectures on the book of Genesis. Prof. Joy brought the fruits of a rare linguistic scholarship to bear in "Quotations in the New Testament," a book of much value as an aid to the Biblical student. Dr. Pentecost furnished an exegesis of Exodus in "Out of Bondage." Other works on the Bible were "The Great Argument," by Dr. Thompson, which included studies on all the books of the Old Testament, and Dr. Lowrie's "Explanation of the Epistle to the Hebrews," said to be the fruit of many years of thought. In "The Apostles' Creed," Rev. Charles R. Baker gives an excellent exposition. A number of notable books in homiletics belong to the religious literature of the year. Among these may be mentioned "Teachings and Counsels," by Dr. Mark Hopkins, one of the veteran religious writers of the country; "Pastoral Theology," by Rev. J. M. Hoppin; "A Manual of Preaching," by Rev. Franklin W. Fisk; Hunt's "Principles of Written Discourse," an admirable manual of rhetoric for theological students and preachers; and Cheesebrough's "Children trained for Discipleship." "A System of Christian Theology" is the title of a volume gathered from literary fragments, manuscript notes, and unpublished sermons, left by the late Rev. Henry B. Smith. This, in connection with two preceding volumes, completes the exposition of his views on theological questions. A "Life of Paul," well adapted for popular reading, was written by Rev. Dr. Taylor, and under the head of "Some Heretics of Yesterday," a collection of lectures, Dr. Herrick furnishes a very readable account of religious opinions during four centuries. Rev. James Freeman Clarke treats the Pauline theology from a Unitarian point of view in "The Ideas of the Apostle Paul translated into their Modern Equivalents." Rev. Joseph Cook is responsible for another volume of "Boston Monday Lectures," published under the name of "Occident," and discusses modern religious and philosophical thought with oracular certainty. We have also volumes of sermons and lectures perpetuated in book-form in "The Reality of Faith," by Rev. Newman Smyth, and "The Reality of Religion," by Rev. H. J. Van Dyke, Jr. The sermons of the Rev. Dr. Ewer, recently dead, are given under the name of "Sanctity and other Sermons," and a volume of Mr. Talmage's pulpit-talks may be recognized by the title of the "Brooklyn Tabernacle." Some of Henry Ward Beecher's best bits are served under the name of "Comforting Thoughts." A Unitarian view may be read in "Beliefs about the Bible," by Rev. Dr. Savage. Another contribution to what is known as liberal Christianity is Eddy's "Universalism in America," the first volume of which only has been issued. Minger's "Lamps and Paths" is designed for juvenile readers. A very interesting contribution to hymnology and religious biography is found in Nutter's "Hymn Studies," a critical view of the standard old hymns, with sketches of their authors. The Vedder Lectures for 1883, delivered by Rev. J. B. Drury, were issued in book-form, with the title "Truths and Untruths of Evolution." Other books worthy of mention were Hedge's "Atheism in Philosophy," Burr's "Ecce Terra," Bush's "Evidences of Faith," and Cooke's "Outlines of the Doctrines of the Resurrection." The Augustinian and Calvinistic elements of modern belief were strongly presented by Bishop Littlejohn in his "Lectures on the Christian Ministry at the Close of the Nineteenth Century." Another volume was added during the year to Dr. Philip Schaff's "International Revision Commentary."

The books published from foreign sources offer several deserving of note. An interesting view by a converted Hebrew, with fresh and illuminating research into the conditions of Christ's life, were displayed in Edersheim's "Life and Times of Jesus the Messiah." Another similar essay in biographical criticism was given in the translation of Dr. Bernhard Weiss's "Life of Christ." Matthew Arnold's scholarly study of a very interesting period of Hebraic life and thought, "Isaiah of Jerusalem," excited deserved comment and attention, perhaps all the more from its being the work of a layman. Another popular religious biography was that of "Simon Peter," by Dr. Hodder. The theme of the Hibbert Lectures for 1884 was "Native Religions of Mexico and Peru," by Dr. Albert Reville; that of the Framley Lectures of 1883, by Rev. W. Arthur, "The Differences between Physical and Moral Law"; and of the Bedell Lectures for 1883, "Revealed Religion expounded by its Relation to the Moral Being of God," by Rev. H. Cotterell. All these were issued in book form and are forcible, eloquent, and scholarly expositions of the subjects discussed. General Gordon Pasha's strange religious opinions were exploited in "Reflections in Palestine." An interesting exposition of the religious changes going on in the Hindu mind was the characteristic of "Hindu Philosophy" and "Brahmanism," works by Ram Chandra Bose, an erudite high-caste Hindu, who professes a species of modified Christianity. Brewer's "Dictionary of Miracles," published during the year, is a curiously learned work, which the religious student will find of interest and value in helping his researches. The first volume of Spence, Exell, and Neill's "Thirty Thousand Thoughts," "Christian Evidences," an elaborate work of biblical reference, was issued, and no doubt the succeeding volumes will be eagerly looked for. The great Herzog-Schaff's "Religious Encyclopædia" was completed by the issue of the third volume. Rev. T. K. Cheyne's new version of the "Book of Psalms" met the approbation of scholars. Other books of some interest were Blaikie's "Public Ministry and Pastoral Methods of our Lord," Orden's "Touchstones," and Famer's "Resurrection in Nature." Monsignor Capel's new edition of Berington and Kirk's "The Faith of Roman Catholics" was supplemented by Addis and Arnold's "Catholic Dictionary."

Law.—Among the principal American law-books were "Some Leading Principles of Anglo-American Law," by Prof. Terry, of Japan; Wharton's "Commentaries on Law"; Field's "Lawyer's Briefs"; Desty's "American Law of Taxation"; Becker and Simonds on "The Board of Trade and the Produce Exchange"; Lowell's "Transfer of Stock"; Taylor's "Private Corporations"; Roror's "Railroads"; Reid's "Law of the Statute of Frauds," and Benjamin Wood's "Statute of Frauds"; Beddle's "Warranties in the Sale of Chattels"; Pierce's "Fraudulent Mortgages," and "A Commentary on American Phases of Twine's Case"; Wait on "Fraudulent Conveyances and Creditors' Bills"; Church's "Habeas Corpus"; Heard's "Equity Precedents"; Rapalye on "Contempts"; Seton on "Decrees"; Fay's "Executor's and Administrator's Guide"; Dr. Clouson's "Clinical Lectures on Mental Diseases"; Harrison's "Legislation on Insanity"; Lawson's "Adjudged Cases in Insanity"; Spalding's "Public Land System"; Reese's "Medical Jurisprudence and Toxicology"; "Jewish Law of Marriage and Divorce," by Rev. Dr. Midziner; Abbot's "Traveling Law School"; Harris's "Illustrations in Advocacy"; "Miscellaneous Papers," by David Dudley Field; Millar's "Black Calendar of Scotland," and Collins's "Ohio Voter's Manual."

Medicine.—The leading medical works by American authors were as follow: Skene's "Atlas of Female Pelvic Anatomy"; Poore's "Osteotomy and Osteoclasis"; Swanzy's "Hand-Book of the Diseases of the Eye and their Treatment"; Van Buren's "Lectures on the Principles of Surgery," edited by Stimson (new edition); Tracy's "Hand-Book of Sanitary Information for Householders"; Wight's "Maxims of Public Health"; Billings's "Relation of Animal Diseases to the Public Health"; Wright's "Lectures on the Diseases of the Rectum"; Amidon's "Year-Book of Therapeutics"; Loomis's "Text-Book of Practical Medicine"; Millard's "Treatise on Bright's Disease"; Coppie's "Causation of Sleep"; Douglas Graham's "Practical Treatise on Massage"; Dowse's "Brain and Nerves"; Hamilton's "Manual of Medical Jurisprudence"; McKenzie's "Diseases of the Eye and Throat"; Crothers's "Mental Contagion in Inebriety"; Kippox's "Hand-Book of Skin Diseases and their Homœopathic Treatment"; Hewett's "Pathology, Diagnosis, and Treatment of the Diseases of Women," edited by Sims; Hutcheson's "Laws of Health"; Park's "Manual of Practical Hygiene," edited by De Chammont; and "Autobiography" of Dr. Marion Sims, edited by his son. The latter, though not technically speaking a medical book, is of such interest to all physicians that it may properly be classed under this division as much as under that of biography.

LITERATURE, BRITISH. The general stagnation of trade, occasioned by political and social disturbance, had its influence in the literary world, and there were fewer and less important books published in 1884 than usual.

Fine Arts.—Particularly meager is the list of works in this department. Marion Kember's "Guide to Decorative Art," Hodson's "Historical and Practical Guide to Art Illustration," Grove's "Analytic Essays on Beethoven's Nine Symphonies," Graves's "Dictionary of Artists who have exhibited at the Principal London Exhibitions from 1760 to 1880," Loftie's "Essay on Scarabs," Sanders's "Carved Oak Wood-work in the Houses and Furniture of the Sixteenth and Seventeenth Centuries," and Solon on "The Art of the Old English Potter"—these are the most notable books of the year in this direction. The finely illustrated edition of Sterne's "Sentimental Journey," and Dicksee's "Romeo and Juliet," are to be mentioned among the artistic holiday volumes, and Austin Dobson's "Thomas Bewick and his Pupils," and Robbins's translation of Gosse's "Life of Fromentin," among the art biographies.

Language and Literature.—In the general direction indicated by this classification there have been some important publications. The "Bibliography of Printing" of Bigmore and Wyman has reached its second volume and the letter S, and will be completed in the third volume. Hawkins's "Titles of the First Books printed in Europe up to the Year 1600," and the British Museum catalogue of books "Printed in England, Scotland, and Ireland, and of Books in English, printed abroad, up to the Year 1640," are valuable additions to practical bibliography. Dr. Murray's new "English Dictionary," Stormouth's "New Dictionary of the English Language," and the first part of the "Dictionary of National Biography," are valuable additions to their class of literary conveniences. McCallum's "Studies in Low and High German Literature," Gelvart's "Folk-Lore of Modern Greece," and Lafcadio Hearns's "Stray Leaves from Stray Literatures," may be inserted in this class. So may not improperly the Greek and Latin classics: Chinnock's translation of the "Anabasis," Wilstach's "Æneid," and Palmer's "Odyssey."

Dante's "Inferno" has been translated by Sibbold, and Tasso's "Jerusalem Delivered" by Sir J. K. James. There were new editions issued of the works of Marlowe, Dryden, Burton, Pepys, Keats, and Shelley. Francis T. Palgrave's charming little edition of Keats deserves especial mention. Another edition of this poet is by Arnold, and still another by Lord Houghton, while his "Letters" appeared, edited by Speed. The edition by Montague of "Bacon's Essays," Myers's "Selections from Milton's Prose," Ainger's "Miscellaneous Writings of Charles Lamb," the "Sonnets of Wordsworth," by Archbishop Trench, "Selected Poems of Tennyson," by Rolfe, "The Princess," by Rolfe and Dawson, the "Wit, Wisdom, and Philosophy of Richter," in English, and a fine edition of "Jane Eyre," complete the works in general literature. In the way of literary criticism, there were "Shakespeare's Predecessors," by Symonds; "The Prologue and Epilogue in English Literature from Shakespeare to Dryden," by "G. S. B."; "Shakespeare," by Prof. Hales; and Hudson's "Wordsworth."

History.—Dr. A. H. Sayce has prepared a scholarly and useful little monograph in his "Ancient Empires of the East," and "Babylonian Life and History" have been treated by Mr. Budge, while Sir C. H Rawlinson has published the second part of the fifth volume of his "Selections from the Miscellaneous Inscriptions of Assyria and Babylon." The third volume has appeared of the series, by George Stephens, of the "Handbooks of the Old Northern Runic Monuments of Scandinavia and England," and "Scotland in Pagan Times," by J. Anderson, completes the list in ancient history. More recent, yet hardly modern, is the "History of English Goldsmiths and Plate-workers," by Chaffer. General English history furnishes the first four books of William of Newburgh's "Historia Rerum Anglicarum," edited from the MSS. of the Rolls; the tenth volume of the "Calendar of State Papers," Brewer's "The Reign of Henry VIII," Paul Friedmann's "Life of Anne Boleyn," Percy Fitzgerald's "Life and Times of William IV," the "Facsimiles of Irish Manuscripts," edited by J. T. Gilbert, have been completed, and J. R. Green's noteworthy "Conquest of England" has appeared. "A Study of Ireland in the Seventeenth Century," by Mary Hixon, and W. A. O'Connor's "History of the Irish People," are important additions to the bibliography of this subject. Sir Alexander Grant's history of "The University of Edinburgh's Three Hundred Years" is a valuable addition to the history of education in Scotland. In special histories, we have Mr. J. H. Skene's "With Lord Stratford in the Crimean War," M. Taine's fourth and concluding volume of his work on "The Revolution," Lady Jackson's "Court of the Tuileries," M. de Maupas's "The Famous Coup d'État," Gindeley's "History of the Thirty Years' War," and Holmes's "Account of the Indian Mutiny." A new "History of Prussia," by Herbert Tuttle, extends to the accession of Frederick the Great; and there were published Boulger's "History of China," Rusden's "History of Australia," Justin McCarthy's "Short History of Our Own Times," the "Russian War in Turkomania," by Gen. Grodekoff, Col. Malleson's "Battle-Fields of Germany," Lieut.-Col. King's "Famous and Decisive Battles of the World," two works on the "War in the Soudan," by Hon. J. Colborne and Bennett Burleigh, and a brief essay by Atkinson on "The Reading of History."

Essays.—Among the essays of the year, quite the brightest and most original and graceful were those published under the title "Obiter Dicta," anonymously, and reprinted by Messrs. Scribner. Vernon Lee's "Euphorion" is a collection of historical essays; Dr. Hedge's "Atheism in Philosophy" is theological and philosophical. The "Essays and Leaves from George Eliot's Note-Book," Walter Besant's "Art of Fiction," T. Hall Caine's "Cobwebs of Criticism," Hamerton's "Human Intercourse," Miss Hamlen's "Chats," and Rev. Minot J. Savage's "Man, Woman, and Child," are cast in a less serious vein.

Biography.—Perhaps the fullest department in literature in the production of the year was that of biography, important both for subject and author in many marked instances. The English translations of Nohl's Lives of Liszt and Wagner were valuable contributions to musical history, as was also Mailland's "Life of Schumann," in the series of "Great Musicians." Hodder's "Life and Times of Simon Peter" is a somewhat remarkable effort; the reformer Wycliffe had two biographies published during the year—one by Loserth, being translated from the German by Dr. Stoughton, the other by Mr. J. L. Wilson, a Scotch-American. Mr. Bell's translation of Goethe's "Early and Miscellaneous Letters," Dr. Evans's "Memoir of Heine," and Nevinson's "Herder and his Times," illustrate German literature. Mr. Courthope's "Addison," Dean Church's "Bacon," and Mr. Traill's "Coleridge," are additions to the series of "English Men of Letters." Benham has edited an edition of "Cowper's Letters," and a new "Life of Sydney Smith," by Reid, has been published. Mr. Froude's "Carlyle in London" completes this writer's contribution to the biography of his great subject. Among less important personages whose lives have been sketched, are Charles Whitehead, by H. T. Mackenzie Bell, under the title of "A Critical Monograph," and "Hablot K. Browne," whose "Life and Labors" have been written by D. C. Thompson. Lord Brabourne has edited the "Letters of Jane Austen," the "Complete Works of Mrs. Bray" have appeared in a new edition, with her "Autobiography," edited by Mr. Kempe, and the "Tales, Poems, and Essays" of Mrs. Barbauld, and of Jane and Ann Taylor, have been brought out by Mrs. Grace A. Oliver. Her Majesty Queen Victoria has published her "More Leaves from the Journal of a Life in the Highlands," the "Story of the Princess Alice" has appeared, and Dr. J. B. Williams, Physician Extraordinary to the Queen, has published "Memories of his Life and Work." The "Biography of Arminius Vambéry," written by himself, and C. W. D. L'Estrange's "Life of Brig.-Gen. MacIver" are two instances of more adventurous lives. Moritz Busch's "Bismarck" attracted general criticism, and Robertson's "Life of John Bright," and Archibald Forbes's "Biography of Chinese Gordon" are among the important works in this class. Col. Chaillé Long's "Three Prophets" includes the latter, with El Mahdi and Arabi Pashi for the other two. Gordon's "Letters from the Danube, the Crimea, and Armenia," and "Reflections in Palestine," throw still further light on the life and character of the great soldier. "The Life of F. D. Maurice" and "Dr. Mozley's Letters" are to be named in English biographical literature; and so are the "Croker Papers," the second series of "Extracts from the Diary of Henry Greville," Robert Harrop's "Political and Critical Study of Lord Bolingbroke," Mr, Osmond's "Lord-Advocates of Scotland," the "Autobiography of the Earl of Malmesbury," the "Life of the Hon. M. Elphinstone," and the Lives of "Sir Henry Cole" and "General Sir George Napier" completing this subject.

Poetry.—The new publications in this department present very little of importance. Robert Browning's "Ferishta's Fancies" and Swinburne's "A Midsummer Holiday" are the most noteworthy books, after which come Philip Bourke Marston's "Wind Voices," Cholmondeley Pennell's "From Grave to Gay," Lewis Morris's "Songs Unsung," Lang's "Ballades and Verses Vain," and Michael Field, a new writer, with "Fair Rosamond."

Fiction.—In this department, while no remarkable work appeared during the year, the field has been fairly filled by some of the greater and very many of the lesser British novelists. A posthumous work by Anthony Trollope, "An Old Man's Love," Charles Reade's "Perilous Secret," and Wilkie Collins's "I say No," are not novels of the highest rank, though of the greatest names. Mr. William Black's "Judith Shakespeare" and Mr. Blackmore's "Tommy Upmore" are among the second rate. "Called Back," "Dark Days," and a collection of short stories, "Bound Together," introduced Mr. Hugh Conway (a pseudonym) to the English-speaking public, and produced a sensation far in advance of their literary merit, due to their sensational and melodramatic character. "The House on the Marsh" and "At the World's Mercy," published anonymously, attracted considerable attention for similar reasons. Mr. Robert Buchanan produced "New Abélard" and "Foxglove Manor." Mr. R. L. Stevenson's "Treasure Island" created some excitement in literary circles, and Mr. Clark Russell's latest sea-stories, "Jack's Courtship" and "John Holdsworth, Chief Mate," sustained his reputation in his peculiar line. Ouida's "Princess Napraxine," Robinson's "A Fair Maid," Miss Yonge's "The Armorer's Apprentice," Mrs. Lang's "Dissolving Views," Mr. Anstey's "The Giant's Robe," Mrs. Walford's "The Baby's Grandmother," a charming story, Mrs. Mulock-Craik's "Miss Tommy," founded on fact, Mrs. Oliphant's "Old Lady Mary," a clever ghost-story, and "Laddie," and "Miss Toosey's Mission" complete the list of British fiction for 1884.

Medicine. — A number of really important works on medical science appeared during the year, and the list of new editions is larger than usual. Sir Henry Thompson published "Tumors of the Bladder" and "Lectures on some

Important Points connected with the Surgery of the Urinary Organs." Snow's "Clinical Notes" are upon Cancer; Butler's "Malignant Disease of the Larynx," and Gibney's "The Hip and its Diseases," are valuable special works. Rindfleisch's "Elements of Pathology," Pepper's "Elements of Surgical Pathology," and Woodhead's "Practical Pathology," are valuable additions to this department of medical science. Bodenhamer's "The Hæmorrhoidal Disease" is an important treatise on a prevalent disorder. Martin and Moale's "Hand-Book of Vertebrate Dissections," Part III, is a manual of comparative anatomy. Hart's "Atlas of Female Pelvic Anatomy," Henke's "Atlas of Surgical Anatomy," and Ziegler's "Text-Book of Pathological Anatomy and Pathogenesis," have taken high rank in this department. Clouston's "Clinical Lectures on Mental Diseases," Billings's "The Relation of Animal Diseases to the Public Health and their Prevention," Roberts's "Theory and Practice of Medicine," Coppie on "The Causation of Sleep," Lennox Brown and Behake on "Voice, Song, and Speech," Dowse on "The Brain and Nerves," Crothers's "Mental Contagion in Inebriety," Buckham's "Insanity considered in its Medico-Legal Relations," Hamilton's "Manual of Medical Jurisprudence," these are to be included under more general classification.

The works on diseases of special organs include Mackenzie's "Diseases of the Throat and Nose," vol. ii, Toswell's "General Practitioner's Guide to Diseases and Injuries of the Eye and Eyelids," Kippox's "Hand-Book of Skin Diseases and their Homœopathic Treatment," Alt's "Treatise on Ophthalmology for the General Practitioner," Hartridge on "Refraction of the Eye," Wolfe's "Clinical Demonstrations on Ophthalmic Subjects," Swanzy's "Hand-Book of the Diseases of the Eye and their Treatment," Noake's "Post-Natal Catarrh and Diseases causing Deafness," Fidy's "Legal Medicine," Hewitt's "Pathology, Diagnosis, and Treatment of the Diseases of Women," Jones's "Practical Manual of Diseases of Women," are among the more important books in this class.

In chemistry and physiology are Rolfe's "Clinical Chemistry," Charles's "Elements of Physiological and Pathological Chemistry," Simon's "Manual of Chemistry," Roscoe and Schorlemmer's "A Treatise on Chemistry," Leffmann's "Compend of Organic and Medical Chemistry," Flückiger's "The Cinchona Barks pharmacognostically considered," Hutchinson's "The Laws of Health," McGreggor-Robertson's "Elements of Physiological Physics," Powers's "Elements of Human Physiology," Clevessger's "Comparative Physiology and Psychology," Chapman's "History of the Circulation of the Blood," Billing's "Principles of Ventilation and Heating," Park's "Manual of Practical Hygiene," Gerhard's "Hints on the Drainage and Sewerage of Dwellings," and Richardson's "The Field of Disease." This subject may be concluded with Chesney's curious work, "Shakespeare as a Physician."

General Science.—In the department of electricity the new publications include Hammond's "Electric Light in our Homes," Swinton's "Principles and Practice of Electric Lighting," Gordon's "Practical Treatise on Electric Lighting," Fahie's "History of Electric Telegraphy," and May's "Bibliography of Electricity and Magnetism."

In geology and natural history generally are Dr. H. C. Lang on "The Butterflies of Europe," Sir Richard Owen's "British Fossil Reptiles," Prof. Romer's "The Bone-Caves of Europe," and G. J. Hinde on "The Fossil Sponges in the British Museum." Economic science is enriched by Prof. Thorold Rogers's "History of English Labor," a work of remarkable research and profound philosophy. Fraser Rae published a study of "Contemporary Socialism." Mr. Mallock answers the "Progress and Poverty" of Mr. Henry George by his "Property and Progress." Mr. Edward Bellamy, on the same subject, has written a work entitled "The Way out," Troup's "The Future Work of Free Trade in English Legislation," handles trade relations, and Mr. H. M. Hyndman has published the "Historical Basis of Socialism" in England, while Arnold Toynbee's "Industrial Revolution in England" has been issued with a Memoir by Prof. Jowett.

In political economy and cognate sciences we have Creighton's "Primer on the Government of England," Pollard's translation of Laveleye's "Elements of Political Economy," Crane and Moses's "A Study on Politics," Walter Pollock's essay on "The Land Laws," and Stanley Jevons's "Investigations in Currency and Finance."

More general in their nature are the Duke of Argyle on "The Unity of Nature," Bird's "Higher Education in Germany and England," Prof. Sheldon Amos on "The History and Principles of the Civil Law of Rome," Roby's "Introduction to the Study of Justinian's Digest," Hartmann's "Philosophy of the Unconscious," Maudsley's "Body and Will," and a translation of Schopenhauer's "World as Will and Idea."

Theology.—Mr. Matthew Arnold has published an essay on "Isaiah," Mr. Cheyne a translation of "The Book of Psalms," and Dr. Bernard Weiss and Dr. A. Eversheim respectively lives of Christ. Addis and Arnold's "Catholic Dictionary" and the "Schaff-Herzog Encyclopædia of Religious Knowledge" are complete. Other theological works are Jackson's "Primer of the Greek and Latin Fathers," Lea's "Sacerdotal Celibacy," Hurst's "Short History of the Reformation," Hansen's "Reformed Church in the Netherlands," Palmer's "Events connected with the Publication of the Tracts for the Times," Dr. Stoughton's "Religion in England for the First Half of the Present Century," Dr. Reville's "The Native

Religions of Mexico and Peru," Lilly's "Ancient Religion and Modern Thought," Fairbairn's "City of God," and Principal Tulloch's "Modern Theories in Philosophy and Religion."

Voyages and Travels.—In these subjects we have Ballantine's "The Old World and the New," Emily Faithfull's "Three Visits to America," Henry Irving's "Impressions of America," Hughes's "Gone to Texas," Aldridge's "Life on a Ranch," Barneby's "Life and Labor in the Far Far West," Sanford Fleming's "A Summer Tour in Canada," Holyoake's "Travels," Pigeon's "New World Answers to Old World Questions," Leighton's "Life at Puget Sound," being all travels in America.

In other lands we have Hunnewell's "The Historic Monuments of France," Falkner's "Rapid Ramblings," Walford's "Greater London," Mrs. Mulock-Craik's "An Unsentimental Journey into Cornwall," Bonney's "The Cathedral Churches of England and Wales," Mr. Blanchard Jerrold's "At Home in Paris," Brown's "Life on the Lagoons," Hare's "Venice and Florence," Lady Brassey's "The Trades, the Tropics, and the Roaring Forties," Miss Gordon Cummings's "In the Himalayas and on the Indian Plains," Mr. Kerry-Nicholls's "The King Country," Green's "The High Alps," Turner's "Samoa," Johnstone's "Camping among Cannibals," Johnston's "The River Congo," Little's "South Africa," "The Transvaal" by E. V. C., Dr. Williams's "The Soudan," Dr. Alfred Wight's "Adventures in Servia," Mitford's "A Land March from England to Ceylon Forty Years ago," Colville's "First Steps on the Water-Way of Edom," Palmer and Besant's "Survey of Western Palestine," Marx's "Upper Siam and Lao," Carl Bock's "The Land of Temples and Elephants," and Marvin's "The Petroleum Region of the Caspian."

LITERATURE, CONTINENTAL, IN 1884. Literature on the Continent, during the present year, has pursued the even tenor of its way, and furnishes evidence of life and fair activity. No particularly striking or novel production has appeared; but in all departments has been manifested a love of letters, accompanied by the publication of various works of merit and solid value. We follow our usual plan of giving a sketch of Continental literature in the alphabetical order of countries.

Belgium.—Politics and history occupy largely the attention of Belgians, and the daily press is very active in discussing matters of national interest and concern. Rival parties are arrayed against one another on the education question, and a very large number of treatises has been published on the subject. Among these may be named Trasenster's study on "The Higher Education of Women," and the parliamentary committee's report upon the condition of public and private educational establishments. M. Philippson draws a powerful picture of "The Counter-Revolution in Religion during the Sixteenth Century," whence originated Roman Catholicism as now organized in Belgium. National history is zealously studied. M. Namiche has brought out two more volumes of his "Cours d'Histoire Nationale," which are occupied chiefly with the reign of Charles V in the Low Countries. Numerous monographs of local history have appeared, and bibliography has proved fertile and useful during the year. The group of writers known as "Young Belgium" has been very productive in fiction, light literature, poetry, etc. Besides the large number of publications in French, the prevailing language, there are evidences of life and vigor in Flemish literature in Belgium. This is shown in the production of works of merit on Flemish art, criticism, the drama, and the like. Poetry, too, has been very prolific, and is pronounced by competent judges to be really brilliant. The great literary event of the year in Belgium was the publication of a collection of poems by Jan van Beers, "Rijzende Blaren" ("Rising Leaves"), in which the old Antwerp poet took the public quite by surprise, his poems being as touching and as fresh in sentiment as those of his youth. The work was excellently illustrated by his son, a painter of some note.

Denmark.—During 1884 there was celebrated at Copenhagen the second centenary of "the father of Danish literature," Ludvig Holberg. In connection with this, new editions of his comedies and other works were published, as well as several volumes illustrative of the life and times of Holberg. Critical works on Danish literature have appeared, the most important of which is that of George Brandes. In the field of novels, tales, dramas, etc., Schandorph, Drachmann, and Gjellerup are worthy of note, as also Ewald, Hausen, Etlar, Gerhard, Boudesen, and others. In fact, the number of tales, sketches, and studies is so great as to render it impossible to give even a partial list in the present article. In history the contributions have been fairly up to the average of previous years. P. Hausen's "History of Danish Literature" and "Modern Danish Painting" are spoken of in high terms. Besides these there are several volumes illustrating Danish history and biography, such as Lütken's "Battle of Heligoland" (1864), Lund's "Denmark and Norway in the Sixteenth Century," autobiography of Bishop Brammer, etc. Periodical literature meets with good support, and translations and critical essays evidence the existence of life and spirit in popular literature.

France.—Judging from appearances and the hundreds of volumes issued during the year, in the republic, it would seem that Zola and the realistic school, so called, had gained the day entirely over the old-fashioned idealism of the romantic school of other times. Naturalism, it is to be noted, does not deem itself bound any longer to observe the compromises that the incessant watchfulness of its adversaries imposed upon it, and it pushes its system to the fullest logical consequences, with all the processes proper and needful to it. Possibly, nay probably, a reaction will ere long set in, as the public are beginning to weary of the monotonous and rather unsavory feast so largely furnished. Poetry, during the year, has given but faint signs of healthful, free life. Victor Hugo's voice is silent, as is but natural in view of his increasing years. M. de Lisle has issued a volume entitled "Poëmes Tragiques," which the critics praise as addressed to the select few, but which can never become popular; and M. Richepin has put into print his "Les Blasphèmes," in which it is thought, by some, that he rivals the intense, passionate melancholy and deeply-rooted conviction of Lucretius, in a field that the Roman poet has rendered immortal in literature. A large number of songs, idyls, poems, etc., has appeared, but few if any are deserving of mention in this place. The novel continues to hold its supreme position in popular favor. M. Zola still writes with his accustomed force and devotion to a kind of literature with which his name is inseparably linked. Daudet, in his "Sapho," deals with a subject repulsive to most minds. Huysmans, a disciple of Zola's, furnishes a striking product of realistic pessimism. His "À Rebours" describes the life of an aristocrat, aiming at a life unlike that of other men, seeking morbid sensations, and dying of spleen and *ennui*. Harry-Alis, in "Reine Soleil," has made a study of the courtesan, in imitation of Zola's book on the same subject, powerfully written, but open to the fatal objection of being an improper topic to treat of in books intended for moral, decent people. Cherbuliez has taken in hand a study of the miners and their industrial surroundings. Among books of a healthier tone and purpose the number published during the year is not small. Literary criticism appears to be almost at a standstill. Only a few publications of the year indicate attention to this department, such as Brunetière's "History of Literature," Rolland's biographical recollections of Lamartine, Deschanel's volumes on Racine, Amiel's book on the character of Juste Lips and other humanists of the sixteenth century, etc. The publication by his family of letters by Guizot has done good service for the reputation of the great statesman and author. Taine's new volume of the "History of the Revolution" exhibits the writer's usual power, and is praised by the critics as a vigorous and, in a measure, successful effort to get rid of the revolutionary legends, and to face the truth in regard to the origin of modern France. Several other works in political, constitutional, and literary history have appeared, and give evidence of devotion of French scholars to subjects of grave importance to the well-being of the republic. In like manner higher branches of thought are well represented in books on social questions—philosophy, morality, and physical science.

Germany.—Literature in Germany manifests no diminution in production of books, however many of these may prove to be of trifling value. In number of authors, and in amount of publication on all sorts of subjects, the country of Goethe and Schiller, of Heine and Uhland, of Lingg and Hamerling, of Spielhagen and Heyse, holds the front rank among the nations on the Continent. Emanuel Geibel, who has been termed "the poet of the German ladies," died in April of this year, at the full age of threescore years and ten. His reputation for the higher and nobler qualities of the poet is very great, and hardly any lyric poet, except Heine, has been so universally popular as Geibel. W. Jensen's "Skizzenbuch" is much praised for its poetic stories, and Von Wildenbruch has obtained the highest honor as a lyric poet as well as a dramatist. The Grillparzer and Schiller prizes were both bestowed upon him. Paul Heyse also has obtained similar recognition of his skill and power as a dramatist. Lohwag's "Iphigenia in Delphi" is much praised by the critics, as an able study in character and tone, and also as a faithful re-echo of Goethe's "Iphigenia in Tauris." Schack and Caro have also produced tragedies of merit. The archæological novel is still said to be master of the situation. Eckstein's "Prusias," which brings up afresh the insurrection of the slaves in Rome under Spartacus, and Dahn's "Brissula," descriptive of a fair-haired Swabian girl, and her brave resistance against Roman oppression and outrage, are noted for fidelity and skill in depicting manners and customs. Spielhagen, in his latest novel, "Uhlenhaus," has returned to the shores of the Baltic, and deals in a thoroughly artistic manner with politico-social economy and its development. This writer maintains his place at the head of German novelists. Numerous other authors have written on the inexhaustible theme of the distinction between social grades, and have met with varying success. Von Redwitz, Heyse, Lindau, Voss, and others, contribute to this department of literature. A large number of works, partly historical, partly biographical, with more or less of romance commingled, has appeared during the year. Von Treitschke's "German History in the Nineteenth Century" received a prize from the Berlin Academy. Other works in German history are much praised by the critics, as those by Wagener, Von Reumont, Busch, etc. The last volumes of Metternich's Memoirs are brought to a close in the eighth volume, and mark the peculiar power and diplomatic skill of the Austrian chancellor, in the former half of the century. The German "man of iron" (Bismarck) of the latter half of the century has furnished material for literary workers, among whom M. Busch has been most successful. Several contemporary memoirs have appeared from A. Meissner, B. Auerbach, H. Wagener, C. Meding, etc., which are pronounced by competent judges to be valuable as well as interesting. Among works of this year properly to be termed historical, Ranke's fourth volume of Ancient History stands first. In this the venerable historian, now in his ninetieth year, brings the record down to the transfer of the empire to Constantinople in the East, and the foundation of the Germanic kingdoms in the West. Various portions and periods of German history have received this year close and careful attention, from A. Dove, H. Ullman, H. Bresslau, K. Müllenhoff, etc., and H. Schliemann has pushed his investigations in the Trojan plain and published the results. His zeal and earnestness are freely acknowledged, but the actual value of his discoveries is much questioned by scholars. No specially remarkable work has appeared this year in the department of philosophy. Buddhism has been largely studied, and some good books on Indian philosophy have been published. Lotze, whose premature death is much deplored, still exercises influence in philosophical study. Kant is still criticised as well as studied, and many of his countrymen are inclined to reduce the substance of "scientific philosophy" to the study of knowledge, or rather to the criticism of knowledge. But the German mind still turns strongly toward metaphysics, and it seems as if Schopenhauer was right in his assertion that the metaphysical impulse in man is immortal.

Greece.—Periodical literature has flourished in Greece during the year. The "Archæological Journal," the "Bulletin," the "Estia," as well as journals of learned societies, are excellently supported, and exercise large influence throughout the kingdom. Light literature meets with only partial success, most of the publications of this kind being tales, narratives, letters, etc., and appearing in the magazines. Poetry in a mild way, and the drama, are cultivated to some extent, and several contributions of the year are worthy of notice, as Drossinis's "Idyls," Phermbos's versified "Fables," Antoniadis's "Tragedies," and a comedy, etc. As modern Greek is studied in the middle schools, there has been supplied a collection of Greek reading-books, under the title of Neo-Hellenic Readings. Some additions have been made to theology. Among these is Bishop Bryeminis's "Teaching of the Apostles," which is quite well known now in America. Church history, pastoral theology, Christian archæology, with kindred works, show that diligence and scholarship are rewarded with good success in Greece. Philology and art are also well cared for, and history proper receives its due share of study and research in such works as the "History of Greece from the most Ancient Times to our Day," by Venizélos (vol. i), the "Second Siege of Missolonghi" (1825), by Michos, and "The Alexandrian World," biographies of eminent Greek Hellenists of Alexandria.

Holland.—The anniversary of the death of William the Silent was celebrated in July of this year, and gave rise naturally to a number of papers on the subject of the house of Orange and the Dutch people. These were not only interesting and appropriate, but also valuable for historical purposes. History has been cultivated during the year with much diligence, and a number of volumes published, treating of the Eighty Years' War, the Dutch power in the East Indies, the surrender of Amsterdam in 1795, etc. Huët's excellent work on the progress of sciences, letters, and arts in Holland, in the seventeenth century, is very suggestive and useful and has just reached its conclusion. Philology meets with its usual share of attention, as shown by several publications of merit during the year. Dante's "Divine Comedy" has just been translated into Dutch in the terzarima, and is said to be well executed. Shakespeare also has found an appreciative translator in Burgersdyk. Poetry and the drama maintain their accustomed place, and novelettes abound. Many of these are lauded by the critics. Beets, the venerable Dutch author, celebrated his seventieth birthday this year, and published the fifteenth edition of his admirable work, "Camera Obscura." He is pronounced by those who seem to know whereof they speak to be not only of noble character and uprightness, but also possessed of such talent and pure taste as to render him universally honored and loved in Holland.

Hungary.—Literature, in the usual sense of the word, appears to be giving way in Hungary to strictly scientific investigation and research. Scientific periodicals absorb most of what is prepared for the press, and consequently few volumes of importance are published. History is extensively cultivated, and quite a large number of works have appeared, which treat of the history of Hungary and Austria, the history of the Jews in Hungary, the history of civilization, the biographies of eminent Hungarians, etc. The origin of the people of Hungary, about which there is great diversity of opinion, is treated with much spirit by Hunfalvi, Barna, and Rudenz. Philology and philosophy are freely cultivated. In the former may be named an excellent Finnish-Hungarian Dictionary by Szinnyei, and in the latter a work on "The Pessimism of the Nineteenth Century," by M. Alexander. This volume obtained the academical prize, and it is said well deserves it. M. J. Kiss's poem, "A Tale of a Sewing-Machine," is much praised. Jokai, the famous novelist, maintains his position, and has written the best novel of the year. Numerous other writers, however, have done well in this line. The drama remains much the same as last year, the production being only of average merit. On the whole, the literary future of Hungary is hopeful, though not very clear.

Italy.—Literature in Italy, during the year, can hardly be said to have flourished, and on the whole presents a discouraging aspect. G. Prati and G. Carcano, who were poets of considerable reputation, have died at seventy and seventy-three years of age respectively. The latter had translated Shakespeare into Italian with a good measure of success. Both belonged to the school of Manzoni, and were distinguished for the high moral and religious tone of their writings. The new school of poetry in Italy, on the other hand, is noted for its avowed enmity to Christianity and all that Christianity involves. It declares itself without hope, affirms life to be for suffering, despairs of Italy, and complains that she is incapable of revolution and regeneration. This school looks to Foscolo and Leopardi as its *genii*, and loves to worship at their shrines. Carducci and Rapisardi are representative verse-makers of this school, and in the last poem of Rapisardi's, entitled "Giobbe" (the patriarch Job), he shows himself to be fiercely opposed to everything that is believed in religion, or that exists in society. The dramatic harvest is poorer than the lyrical. The year has been also unproductive of novels. Some tales based on the principles and processes of the French school of Zola, and some others of a better sort, constitute the chief outcome, showing that the novel in Italian literature is in a state of decadence. C. Guliani, whose life was devoted to the interpretation of Dante, has been removed by death. The labors of Prof. d'Ancona, and Prof. Bartoli, on the great national poet, indicate ability and skill of a high order. The chief work, however, in literary criticism, is that of Prof. Rajna, entitled "Le Origini della Epopea Francese," which obtained for the author a prize of 10,000 francs. In history there appears to be but little talent employed. Critics affirm that existing writers in this department are, as a rule, inferior to second-rate contemporary historians in England. De Leva's work on Charles V has reached its fourth volume, and is regarded as a production of value, although put together in poor style; other writers in this department hardly deserve to be named, with the exception perhaps of Tocco on the heresies of the middle ages, and Taberrini in his lives and recollections of distinguished Italians of the present century. One or two volumes, which must be regarded as on the border-land between history and fiction, have appeared from the pen of De Amicis. Other writers have dealt in similar wise with topics partly literary, partly scientific. Periodical literature flourishes with fair success, and the number of publications in the way of reviews, magazines, and weekly journals, is quite large, and gives promise of better things for literature.

Norway.—Novels and novelettes, during 1884, were unusually numerous in Norway, and written largely with distinct purpose in view. Björnson, after years devoted to the drama, has returned to his old field, and has produced a remarkable novel. In this he dwells upon the indulgence accorded to immoralities of men, as opposed to the judgment passed on women for similar transgressions. He also discusses the remedy, and urges that it must come from women being educated to take their full share in the duties and responsibilities of life. Jonas Lie and A. Kielland have written novels dealing with other not less important social questions of the day. Garborg's "Tales" are among the best of the year's productions. The drama is but slightly represented this year by Ibsen's "The Wild Duck" and H. J. Broch's "Gold." Scientific literature of the year is also of small account, being chiefly marked by essays and monographs on Norway and Norwegian history and biography. The rise and progress of the theatre in Norway are treated of by T. Blanc, and it seems to be proved that the country produces artists worthy of ranking among the best in their profession.

Poland.—This year was marked by the celebration of the three hundredth anniversary of the death of one whom the Poles regard as a prince of poets, viz., Johann Kochanowski. He was the first great poet in Polish literature, and the commemoration of his death called forth numerous publications in verse as well as prose in reviews and other periodicals. A monumental edition of his works, with explanatory notes and criticism, was also issued, and a literary congress was held at Cracow, where Kochanowski was eulogized, and discussions were held as to the condition of literature in much-depressed Poland. It is pointed out, as a strange irony of destiny, that J. I. Kraszewski, the chief representative of national literature, should be compelled to spend his old age as a state prisoner in the Prussian fortress of Magdeburg; nevertheless, Kraszewski is very prolific, and has continued to furnish at intervals additions to his numerous historical novels. New novels this year have been produced by T. T. Jez, H. Sienkiewicz, and P. Bykowski. These are spoken of in high terms by the critics and reviewers. Several writers have brought out collections of their tales and novelettes, and the social questions of the day have received due attention. To the drama there have been contributions this year that indicate talent and skill, from Zalewski, Swiencicki, Madame Meller, etc. Besides these, two or three collections of lyric poems have been published. In history little of moment has appeared. Several biographical monographs are timely and valuable, and M. Straszewski has supplied an elaborate work "On the Origin and Development of Pessimism in India." The record of the year is not certainly very encouraging, but the situation is not by any means without hope of better things.

Russia.—The record of Russian literature during 1884 is meager and unsatisfactory, not unlike in this latter respect to that of the civil and political condition of the empire of the Czar. The chief literary events of note are the appearance of the first volume of the correspondence of Ivan Turgenieff, and the publication of a "Literary Miscellany," edited by the Literary Society of Russia in commemoration of their twenty-fifth anniversary. Turgenieff's correspondence, as far as issued, is striking and valuable, mainly as giving an account of his literary predilections and his method of working. The completion of this publication is looked for with much interest, though, owing to the political troubles in the country, and the severity of the Government in regard to political allusions or expressions in any printed book or periodical, it is not probable that the remainder of the correspondence will speedily see the light. "The Literary Miscellany" contains the opening chapters of Count Tolstoy's novel, "The Decembrists," and several attractive stories by Stechedrin, a Russian Dean Swift in style and energy; some poems of Turgenieff; a history of the Russian Literary Society, etc. In fiction and light literature the year has produced nothing of moment or value, and in poetry much the same statement is true. History also furnishes no works of merit this year. Historical articles in magazines, and historical memoirs, have appeared, some of which are regarded as valuable and important. In the science of geography there has been no original production this year. The work of M. E. Reclus, however, on Russia has been translated into the vernacular, and is considered by the critics to be an admirable scientific production, both creditable to the author and calculated to advance the knowledge and appreciation of Russia at home and abroad. A volume on "Traditional Law among the Russians of Northern Russia," by Madame Efimenko, is much praised as an excellent addition to national literature. The centenary of the illustrious Russian critic, Belinsky, who was pre-eminent as an interpreter of Shakespeare, was celebrated this year, and the Government has seen fit to relax some of its severity in interdicting numerous authors, both Russian and foreign. Possibly another year will show an improved state of affairs in literature.

Spain.—The progress in science, literature, and art, during the year, has been very encouraging, on the whole. Light literature, in the way of novels and tales, has greatly increased, and poetry (lyrical as well as dramatic) has yielded abundant fruit. The number of this class of books is noted as almost incredible. Every variety of topic is gone into, and nearly every mode of treatment has been employed. In the dramas, however, there are few new works, and these are said to be of not much value. Echegaray, who stands at the head of Spanish dramatists, has reprinted three of his best productions, but has written almost nothing this year. Gomez, Novo, Sellés, Zapatas, etc., are named with praise by the critics for work in this line. The fourth and fifth volumes of the "Transactions of the Royal Academy of History" have been published, and contain a number of good papers on Spanish history and antiquities. There are also quite a number of noteworthy volumes dealing with historical matters of importance, in both Spanish and European history, together with essays, articles in journals, reviews, etc., on contemporaneous events. Provincial history and topography are still much in favor, and several additions have been made to books on these points. In archæology, numismatics, and other branches of history, much activity has been manifested, which has led to valuable publications. Translations from English, French, and other languages have increased in variety and excellence, and numerous costly reprints have found buyers and readers.

Sweden.—Literary matters in Sweden this year have been in general quiet, though Strindberg, the champion of the new literary school, has roused public attention and produced much excitement by attacking, in one of his novels, a chief dogma of the Church, and in others pleading for Rousseau's evangel in place of the gospel of Christianity. Tales and novelettes are numerous, and some lyric and dramatic poetry has appeared. Snoilsky and Rydberg are named as at the head of the poets in Sweden. Scientific literature is well represented by several works published during the year, and by an index to the transactions of the Swedish Academy of Sciences. Legal science and literature are also successfully and actively cultivated. Numerous contributions to history have been made in volumes upon Charles XII, Gustavus III, and others, together with valuable memoirs of later kings of Sweden and their times. "The History of Swedish Printing" (1783–1883), of which two volumes have been issued, is very highly praised by competent critics; and a great work of bibliography, the "Swedish Book Lexicon," of Linnström, has been brought to its completion. The history of literature and the fine arts has received much attention during the year, and several excellent books have appeared, such as Warburg's monographs on the Swedish poet and historian Olof von Dalin, and on Molière, and also Hafström's account of the practice of the plastic arts in Sweden (1600–1884). During the year there have appeared, in addition, numerous political pamphlets, several excellently illustrated books, notes of travel, pictures from peasant-life, etc.

LONGITUDES. See page 54.

LOUISIANA. State Government.—The following were the State officers during the year: Governor, Samuel D. McEnery, Democrat; Lieutenant-Governor, Charles Knobloch; Secretary of State, William A. Strong, succeeded by Oscar Arroyo; Treasurer, E. A. Burke; Auditor, Allen Jumell, succeeded by O. B. Steele; Attorney-General, John C. Egan, succeeded by M. J. Cunningham; Superintendent of Public Education, Edwin H. Fay, succeeded by Warren Easton. Judiciary, Supreme Court: Chief-Justice, Edward Bermudez; Associate Justices, Felix T. Poché, Robert B. Todd, Thomas C. Manning, and Charles E. Fenner.

Overflow.—After the inundation of 1882, reports were gathered from sixteen parishes as to damages from inundation. The summary of these reports shows that 33,043 acres of plant-cane was lost, valued at $2,954,917. Of stubble-cane 17,657 acres was lost, valued at $2,067,410. Of rice, 3,186 acres was lost, valued at $106,898. Of cotton, 107,660 acres was lost, valued at $2,959,833. Of corn, 59,377 acres was lost, valued at $1,102,497. Of peas, potatoes, and miscellaneous crops, 17,542 acres was lost, valued at $207,294. The losses amounted, in stock animals, to $538,079; in buildings, fences, etc., to $674,170; in human labor, $994,494; in expense of unsuccessful defense of levees, $304,077; in other incidental expenses, $152,541; making, in these parishes alone, an aggregate of $12,061,910. The area of arable lands inundated was estimated at 606,674 acres, and the amount of land to be reclaimed by levee protection was estimated for those parishes to be 1,857,700 acres.

While there are no trustworthy data by which to calculate the losses by the inundation of this year, there is good reason to believe that the area overflowed and the damages resulting are far less than in 1882.

Levees.—From the report of the Board of State Engineers for the period from April 20, 1882, to April 20, 1884, it appears that during that time 120 contracts for the construction of levees were made, and nearly all of them have been executed. The work done under these contracts, and the unfinished work under prior contracts, not completed in April, 1882, amounts to nearly 130 miles of levee, requiring 8,699,636 cubic yards of earth-work, at a cost of $887,970. The State during the same period expended, for preventing or closing crevasses, $35,500, making an aggregate cost of levee-work for the period of $923,470.

The U. S. Mississippi River Commission, in August, 1882, allotted $75,000 to close gaps in levees between the mouths of Red river and Cypress creek, and $110,000 to close gaps in Pointe Coupée, all for levees in Louisiana, except $65,283, which was expended for levee-work in Arkansas. The sum of $15,000 was likewise allotted toward building the Bonnet Carre Levee, and other allotments were made for the protection of levees during the late flood. The levee-work in Louisiana, by the U. S. Commission, nearly equals that done by the State, being mainly above the mouth of Red river, and it has cost the United States Government $839,381.

The riparian parishes have expended on levees, since 1881, large sums, reports from ten parishes alone showing that $211,166 of local and individual funds were expended. Three railroad companies also expended $99,450. Thus the total amount expended on levees in Louisiana has been $2,048,000.

In the beginning of March, 1884, the levees of Louisiana were in much better condition than they have been for more than twenty years, but the system has proved inadequate for efficient general protection from overflow during extreme floods of the Mississippi.

Above the mouth of Red river the crevasses of 1884 are attributed to the fact that the water rose higher than the tops of the levees—entirely so, in the opinion of the board, in the case of all that have occurred in levees built under State or praish authority. To secure any certain protection against overflow, the levees, both below and above Red river, must be made higher and stronger than they have ever yet been built.

Finances.—The financial condition of the State is encouraging. The brokerage in warrants has practically ceased. There are no outstanding warrants for previous years, and current warrants are practically at par. The bonded debt of the State is as follows:

Consolidated bonds, Act 3, 1874	$11,373,200 00
Constitutional bonds, 4 per cent., Act 121, 1880	217,750 00
Consolidated, stamped as 2 per cent., Act 121, 1880	265,200 00
Baby bonds outstanding	1,850,285 20
Total	$13,706,435 20

The first amendment to the Constitution, as proposed by the General Assembly, has been adopted by the people. The debt is now permanently fixed, and the uncertainty, litigation, doubt, and distrust that embarrassed the State in her financial operations will probably cease.

Education.—On this subject the Governor uses this language: "At no period in the history of the State has there been such outspoken sentiment in favor of the education of the people, the introduction of improved methods in teaching, the employment of educated and trained teachers, and the extension of the means for elementary education. The people of this State are prepared to approve any legislation that will secure an effective system of free elementary instruction. I advise an entire change in the common-school system, and recommend that school precincts be presided over by local boards or commissioners, and that the organic law be so changed as to permit each school precinct to tax itself for school purposes."

The Southern (colored) University is one of the institutions whose maintenance is provided for by the Constitution. There are 400 students in attendance. It has preparatory, academic, normal, and industrial departments.

The Louisiana State University and Agricultural and Mechanical College is in a satisfactory condition, with fair promise of increasing success and usefulness. Its roll of students numbers nearly 200.

The number of educable youth between six and eighteen years of age is 290,036, of whom 61,466 are in the parish of Orleans. In 1882 there were in 46 parishes reporting (12, including Orleans, not reporting) 1,171 public schools, 921 white and 314 colored teachers, 32,202 white and 27,463 colored pupils; average daily attendance, 35,851; average time taught, 4·21 months. In 1883, in the same number of parishes, there were 1,190 public schools, 904 white and 375 colored teachers; 29,898 white and

29,593 colored pupils; average daily attendance, 40,828; average length of schools 4·17 months. Reports from 55 parishes excluding Orleans, show a balance on hand, Dec. 31, 1881, of $62,283.63; receipts during the following year, $286,767.65, including $98,236.64 from current school fund, $60,603.71 from poll-tax, $38,780.78 from parish tax, and $18,620.44 from interest on 16 sections; expenditures, $222,545.98, including $189,700.36 for teachers' wages; balance, Dec. 31, 1882, $64,221.67. In 50 parishes, the balance, Dec. 31, 1882, was $53,199.77; receipts, $249,041.69; disbursements, $178,691.89; balance, Dec. 31, 1883, $70,079.80.

New Basin Canal and Shell Road.—From March 5, 1881, to Feb. 29, 1884, the departures of vessels of all classes through the New Basin Canal numbered 10,250, the tonnage of which amounted to 262,827 tons. The receipts of cash for the same period amounted to $55,852; of which $25,294 was for tonnage, $19,024 for towage, $5,309 from bridge toll-gate, $169 from city toll-gate, $4,507 from logs, $1,161 from rents, $4,385 from the outer bridge. The fact that nearly 300 vessels arrive by this canal each month, indicates its value to the commerce of Louisiana; but no improvement can be made otherwise than from receipts for toll on tonnage, which is limited by the Constitution to ten cents a ton.

Charity Hospital. — During 1883 a building and sewerage fund of $32,000 was secured from voluntary donations. This, with $25,000 of the general fund, was more than enough to pay for improvements. The extension will accommodate about 130 women and children, forming a needed special department for sick children. The admissions in 1883 were 8,152, being 1,731 more than those of 1882. The number of visiting patients also increased from 6,000 in 1882 to 8,769 in 1883. At the close of 1883 there were 620 patients in the hospital. The hospital gave relief during the year to 16,921 sick. The institution is out of debt. The Sisters of Charity still contribute their gratuitous services.

Deaf-Mutes and Blind.—The building now occupied by the Louisiana State University and Agricultural and Mechanical College was formerly the Deaf and Dumb and Blind Institute. Since these people were dispossessed of that building, they have been cared for but inadequately. It will be necessary to provide additional buildings, as the present ones are totally unfit for the accommodation of any increased number of students.

The Penitentiary.—The convicts are cared for by a lessee, who, during this administration, the Governor says, has provided liberally for them in food, clothing, and medical attention. It will require a large outlay in cash to make the Penitentiary an industrial institution, in the purchase of machinery and materials. Besides, objection will be raised to this system by a large class of citizens, who will complain that their skilled labor is brought into competition with convict labor. It is a popular demand in the alluvial portions of the State to confine the convicts to levee work, under the immediate authority of the State.

Political.—The Republican State Convention was held in New Orleans on the 5th and 6th of March. Delegates to the National Convention of the party were chosen, and the following State ticket was nominated:

Governor, John A. Stevenson; Lieutenant-Governor, W. M. Burwell; Attorney-General, John H. Stone; Secretary of State, F. W. Liggins; Superintendent of Public Education, B. F. Flanders; Treasurer, A. Duperrier; Auditor, Claudius Mayo.

For Attorney-General, Alfred Shaw was afterward substituted; and for Treasurer, M. F. Bonzano. Mr. Stevenson died on his sugar-plantation, on the 27th of June. He was born in Kentucky in 1818, and went to New Orleans in 1830, where he was afterward prominent as a business-man. He opposed secession, but went with the State, and was made a captain in the Confederate provisional navy. He was a member of the State Constitutional Convention of 1879. At the election on the 22d of April, the Democratic candidates were chosen, to wit: Governor, Samuel D. McEnery; Lieutenant-Governor, Charles Knobloch; Secretary of State, Oscar Arroyo; Attorney-General, M. J. Cunningham; Auditor, O. B. Steele; Treasurer, E. A. Burke; Superintendent of Public Education, Warren Easton. The vote for Governor was declared as follows: Democratic, 88,794; Republican, 43,623; Lieutenant-Governor, Democratic, 92,623; Republican, 41,537. Constitutional amendments relating to the judiciary were ratified, as was also (51,784 against 44,589) one fixing the interest on State bonds at 2 per cent. for five years, from Jan. 1, 1880, and 4 per cent. thereafter, and authorizing a State tax of three mills for that purpose, and limiting the State tax to six mills for all purposes. The Legislature, consisting of 31 Democrats and 5 Republicans in the Senate, and 83 Democrats and 15 Republicans in the House, convened on the 12th of May, and adjourned on the 10th of July. On the 20th of May, James B. Eustis, Democrat, was chosen United States Senator. At the election on the 4th of November, the following vote was returned: Republican presidential electors, 46,347; Democratic, 62,540; scattering, 458. One Republican (Second District) and five Democratic Congressmen were declared elected. The Republican electoral and congressional tickets received much support from the sugar and rice planters, who are interested in a protective tariff, and from other independent citizens, who, however, had little confidence in the party management in the State. Conventions held in New Orleans on the 30th of August expressed their views and organized the movement. A convention of colored men had been held in the same city on the 21st of January, to protest against the reduction of the tariff on sugar. Besides resolutions on this subject, this convention passed a resolution asking Congress to appropriate a portion of the surplus in the national Treasury in aid of education.

Cotton-Trade of New Orleans.—The following table shows the receipts of cotton at New Orleans by rail and water during the year ending September 1:

ROUTES.	1883–'84.	1882–'83.
From—	Bales.	Bales.
Red river	104,089	193,456
Ouachita river	90,775	154,661
Arkansas river	2,096	16,833
Mississippi and smaller tributaries	629,162	598,499
Total by river	826,072	963,449
By—		
Morgan Railroad from Houston, Texas	134,775	141,285
Illinois Central	328,596	427,140
Texas Pacific	140,198	144,867
New Orleans and N. E. Railroad	78,866	.....
Mississippi Valley Railroad	97	.....
Louisville and Nashville Railroad	169,494	223,910
Morgan Railroad from Galveston	10,729	98,951
Total by rail	862,655	1,036,153

The Mississippi Valley Railroad, completed in September, passes through a fine cotton country, and gives the city six trunk lines.

LUTHERANS. The Evangelical Lutheran Church in North America comprises four general bodies, consisting of forty-four district synods and eleven independent synods. The following is a general summary of the statistics of the general organizations for 1884:

SYNODS.	Number of synods.	Ministers.	Congregations.	Communicants.
General Synod (North)	23	877	1,338	129,758
General Synod (South)	6	132	233	18,775
General Council	10	729	1,358	210,540
Synodical Conference	5	1,012	1,326	268,759
Independent Synods	11	1,042	2,129	266,808
Total	..	3,792	6,434	894,135

The table in the next column gives a summary of the statistics of the fifty-five district synods of the Lutheran Church, arranged according to the general bodies.

The net increase during the year, according to the "Kalender," was 126 ministers, 107 congregations, and 49,968 communicants; and within the past fifteen years the Lutheran Church has more than doubled its memberships, numbers of congregations, and pastors.

The educational and charitable institutions number 19 theological seminaries, 20 colleges, 31 seminaries and academies, 18 young ladies' seminaries, 33 orphans' homes, hospitals, and asylums, and 9 immigrant missions. In 1884 there were 115 religious periodicals published, of which 39 are English, 45 German, 10 Swedish, 17 Norwegian, 3 Danish, and 1 Icelandic.

I. The General Synod.—The General Synod North was organized in 1821, and is, therefore, the oldest general organization in the United

SYNODS.	Organized.	Ministers.	Congregations.	Communicants.
GENERAL COUNCIL.				
1. Ministerium of Pennsylvania	1747	220	400	88,361
2. Ministerium of New York	1785	80	81	24,238
16. Pittsburg Synod	1845	83	160	15,901
24. Texas Synod	1851	32	45	5,500
32. English District Synod of Ohio	1857	35	66	6,924
33. Michigan Synod	1859	29	60	6,569
34. Swedish Augustana Synod	1860	200	425	50,991
38. Holston (Tennessee) Synod	1861	14	27	2,000
39. Canada Synod	1861	20	63	8,000
45. Indiana Synod	1871	16	31	2,156
Total	....	729	1,358	210,540
SYNODICAL CONFERENCE.				
18. Wisconsin Synod	1845	105	180	52,031
20. Joint Synod of Missouri (eleven districts)	1847	847	1,055	204,488
36. Synod of Minnesota	1860	36	60	7,500
52. Concordia Synod	1882	17	24	4,240
54. English Conference of Missouri	1872	7	7	500
Total	....	1,012	1,326	268,759
GENERAL SYNOD (SOUTH).				
3. North Carolina Synod	1803	24	47	4,756
7. South Carolina Synod	1824	34	55	5,304
9. Virginia Synod	1830	29	61	4,150
15. Southwest Virginia Synod	1842	29	43	2,496
30. Mississippi Synod	1855	6	11	895
35. Georgia Synod	1860	10	16	1,174
Total	....	132	233	18,775
GENERAL SYNOD (NORTH).				
5. Maryland Synod	1820	71	129	13,570
8. West Pennsylvania Synod	1825	78	120	19,859
10. Hartwick (N. Y.) Synod	1831	33	32	4,259
11. East Ohio Synod	1836	42	75	4,775
12. Franklin (N. Y.) Synod	1838	29	34	3,454
13. Allegheny (Pa.) Synod	1842	56	143	12,571
14. East Pennsylvania Synod	1842	72	103	13,606
17. Miami (Ohio) Synod	1845	24	34	2,811
19. Wittenberg (Ohio) Synod	1847	37	72	4,978
21. Olive Branch (Ind.) Synod	1847	20	27	2,440
23. Northern Illinois Synod	1851	34	46	2,742
27. Central Pennsylvania Synod	1855	38	94	7,025
28. English Iowa Synod	1855	26	29	1,178
29. Northern Indiana Synod	1855	41	33	3,490
31. Southern Illinois Synod	1857	10	17	1,028
40. (Second) Pittsburg Synod	1866	27	52	4,684
41. Central Illinois Synod	1867	23	32	1,836
42. Susquehanna Synod	1867	38	60	7,406
43. Kansas Synod	1868	40	49	1,426
46. New York and New Jersey Synod	1871	50	43	9,573
47. Nebraska Synod	1873	43	51	2,258
50. Wartburg (German) Synod	1876	35	43	4,513
51. Middle Tennessee Synod	1878	15	21	752
Total	....	877	1,338	129,758
INDEPENDENT SYNODS.				
4. Joint Synod of Ohio (six districts)	1818	225	395	61,000
6. Tennessee Synod	1820	23	91	8,083
22. Buffalo Synod	1849	20	24	5,550
25. Norwegian Synod (three districts)	1853	201	606	77,013
26. German Iowa (four districts)	1854	199	315	27,500
37. Norwegian Augustana	1860	20	56	5,000
44. Conference of Norwegian-Danish Church	1870	84	360	50,000
48. German Augsburg Synod	1875	33	33	4,000
49. Hange's Norwegian Synod	1876	37	123	7,350
53. Danish Lutheran Church in America	1882	35	114	5,500
Without Synodical connection	....	160	...	15,000
Total	....	1,042	2,129	266,808
Total in America	....	3,792	6,434	894,135

States. Its meetings are held biennially. The thirty-first convention was held at Springfield, Ohio, May 16, 1883. For the report of this convention see "Annual Cyclopædia" for 1883. The thirty-second biennial convention will be held at Harrisburg, Pa., beginning June 4, 1885.

II. The General Synod (South).—The General Synod South was organized in 1863, and held its fourteenth convention in Charleston, S. C., April 16–21, 1884. The Rev. W. S. Boneman, D. D., of Savannah, Ga., presided. Delegates were present from the North Carolina, South Carolina, Virginia, Southwest Virginia, and Georgia Synods, the Mississippi Synod sending no delegates. The total number of delegates was twenty-nine, seventeen ministers and twelve laymen. Matters pertaining to missions and church extension, work among the freedmen, the establishment of an orphans' home, and a union of synods, claimed the attention of this convention. The work of home and foreign missions is under the supervision of a Board of Missions and Church Extension, consisting of three ministers and two laymen. Foreign mission work is carried on in connection with the General Synod (North). Rev. W. P. Swartz is under appointment to labor in the Guntoor station, in India. Contributions for this work, during 1882 and 1883, amounted to $1,058.73. Much of the territory embraced by the General Synod (South) is missionary territory. The contributions for home missions are at present chiefly devoted to the canceling of the indebtedness of the Richmond mission; while the district synods are severally prosecuting missionary work in their own extensive territories. The contributions for the Richmond mission, during 1882 and 1883, amounted to $5,629.88. To the work of home missions may be added the work among the freedmen of the South. This work is fraught with many difficulties, and is, therefore, very slow. The committee report five young men preparing for the ministry, one of whom has now finished his course and has taken charge of a congregation in Washington, D. C. The theological seminary heretofore existing at Salem, Va., was discontinued for want of proper support. The institution was removed to Newberry, S. C., and is temporarily under the care of Rev. Prof. G. W. Holland. Considerable time was devoted to the matter of a more general union of the synods south of the Potomac. In order to effect such a union, a diet was called to meet Nov. 10, 1884. On this date, delegates from the synods of North Carolina, Tennessee, South Carolina, Virginia, Southwest Virginia, Georgia, and Holston met at Salisbury, N. C. Rev. A. J. Bronen, D. D., of the Holston Synod, was the presiding officer. A basis of union, on purely confessional principles, was unanimously adopted, and a constitution was prepared, to be submitted for approval to the various synods represented in the diet, with a view to bring them all into connection with the reorganized general body.

III. The General Council.—The General Council was organized in 1867, and held its seventeenth convention at Monroe, Mich., Oct. 16–21, 1884. According to the usual custom, the morning was devoted to divine service, on which occasion the opening sermon was delivered by the Rev. Dr. A. Spaeth, of Philadelphia. In the afternoon the convention was regularly opened with the customary liturgical forms. Dr. Spaeth was re-elected president. All the synods were represented, except the Holston. Home, foreign, and immigrant missions occupied much of the time of this convention. Three years ago the work of home missions was reorganized and intrusted to German, English, and Swedish committees. The German committee aided missions in Canada, Michigan, Nebraska, Texas, New York, and Pennsylvania. In order to carry on these extensive operations, an appeal was made to the Church in the Fatherland for laborers, which awakened a wide-spread interest. Already forty-three young men are preparing in the mission-house, at Kropf, Holstein, for this work. Several from other institutions have already come to America, and are engaged in mission-work. More than fifteen men are at present engaged, at more than double this number of mission-stations. Contributions during the year amounted to $5,442.96; expenditures, $5,389.93. The English committee have been aiding missions in Ohio, Illinois, and Minnesota, and a traveling missionary in Dakota. There are now six missionaries under appointment, an increase of four since the reorganization of the missionary operations. Encouraging success has everywhere attended the efforts of the missionaries in gathering and organizing congregations, securing lots, and building houses of worship. Besides opening up new mission-fields, the several mission congregations have secured properties aggregating $38,000. Contributions during the year amounted to $3,815.01. The Swedish committee have extensive missionary operations in Illinois, Minnesota, Kansas, Utah, California, Oregon, Nebraska, Idaho, and Washington Territory, and in some of the Middle and Eastern States. Besides this, a great deal of missionary work is done by the pastors, who devote from one to three months to the service, and by the students of their theological seminary. The work of foreign missions is under the supervision of the executive committee. They report four missionaries and two native pastors in the Rajahmundry mission, together with sixty-three teachers, colporteurs, and evangelists, and 845 pupils in the various schools. The baptized membership, including children, is 1,376. The contributions for this work, during the year, amounted to $10,379.18. The mission met with a heavy loss in the death of Rev. H. G. B. Artman, who died September 18, at the age of twenty-seven years. The immigrant mission in New York presents a favorable report. The receipts were $18,291.22, and the expenditures

$17,928.22. There were 15,750 guests taken care of during the year, many of whom received board and lodging gratis; 3,343 letters and cards were received and answered. A new wing was added to the immigrant-house, at a cost of $16,000.

All the morning sessions of the convention, and those of Saturday and Monday afternoons, were devoted to the consideration of the report of the committee on liturgical forms. The committee presented formulas for infant and adult baptism, confirmation, and confession and absolution. Much time was devoted to the consideration of the first of these formulas. The results of the council in this matter are to be sent down to the synods, and then come again before the Council for final action.

The report of the committee on a hymnal for infant schools was adopted, and the committee was authorized to publish the book in the name of the Council.

IV. The Synodical Conference.—This body was organized in 1872. It held its tenth convention at Cleveland, O., Aug. 13–19, 1884. Rev. J. Bading, of Milwaukee, Wis., presided. Representatives (thirty-six) were present from all the synods belonging to the body. The home-missionary operations of this body are very extensive, but are principally carried on by the district synods. The Conference has, under its own control, missions among the colored race of the South, stations being established in Arkansas, Louisiana, and Virginia. The contributions for this work amounted to $10,378.-41. The contributions for foreign missions are principally given to societies in Europe.

Last year a theological seminary was completed at St. Louis, Mo., at a cost of $140,000.

Considerable time at this convention was devoted to the discussion of Dr. Walther's thesis on the subject, "How objectionable it is to attempt to establish matters of faith by the writings of the fathers, and to bind the conscience by their decisions on points of doctrine." By the fathers are meant the early dogmaticians of the Lutheran Church. The thesis maintains that the writings of the early Christian fathers, and of the devout teachers of the Lutheran Church, are treasures for which we can not sufficiently thank God; but they can not have decisive authority, because, as he holds: 1. It is contrary to Scripture. It is against the authority of the Scriptures, which are the only pure sources of all knowledge of faith, the only infallible rule of doctrine, the only authoritative judge in all doctrinal disputes. It is against the doctrine of the Scriptures, for it is contrary to the nature of the Christian's faith, which he has established on the Scriptures, that is, resting on the word of God, and therefore divinely sure; and it is contrary to the warning of the Scriptures with reference to trusting to men in matters of faith, and against all doctrines of men, as also against the Scripture admonition to prove all things. 2. It is a relapse into anti-christian papacy.

M

MADAGASCAR, a large island near the eastern coast of Africa. It first acquired importance for the commercial nations of Europe about 1810, when Radama, a chief of the Hova tribe, established his dominion in the eastern part of the island. In 1817 he made a treaty with Great Britain. English missionaries made great progress in Christianizing the people until the advent to the throne of the Queen Ranavolona I, in 1828, after which relations with Europe were interrupted for a long period. In 1861 her son, Radama II, succeeded to the throne, with whom Lambert concluded a treaty in the name of France. His Queen, Rasoherina, succeeded him in 1863, in consequence of a revolution. She concluded treaties of friendship and commerce with England and the United States in 1865. Her sister, Ranavolona II, who came to the throne in 1868, professed Christianity, and was largely guided in her efforts to improve the people and introduce civilized institutions by the English Presbyterian missionaries. In 1868 she entered into a new treaty with France. The French proclaimed a protectorate over Madagascar in the eighteenth century, but never exercised sovereign rights. Roman Catholic missionaries have been active on the island, though without succeeding in gaining much of a footing among the Hovas. In the western part, where the Sakalavas dwell, they have acquired more political and religious influence. There is some trade with the small French islands adjacent to Madagascar, but the principal trade of the Hovas is with the English colony of Mauritius. American and German traders have a considerable share in the foreign commerce.

In 1879 a quarrel arose between the Hova Government and the French consul at Antananarivo, the capital. The heirs of M. Laborde, the former consul, had sold a piece of land of which he stood possessed to the Père Cazet, the head of the Roman Catholic missions. The Malagasy Government denied that Laborde owned more than a life-tenancy in the land, declaring that the constitution of the country debarred the late King from granting the absolute ownership of land to foreigners. When the French heirs exhibited the title-deeds, the ministers pronounced them to be forgeries. A bitter controversy ensued, in which M. Cassas, the French representative, assumed a hectoring tone. He charged the Hova ministry with ill-will in general toward French claims, which was poorly concealed under appearances of politeness. When the Foreign Minister proposed to refer the question to the arbitration of a neutral power, M. Cassas treated the suggestion as a reflection on his authority, and declared that its repetition would involve a rupture between France and Madagascar. The question was here allowed to rest, the Catholic missionaries proceeding to put up their buildings against the protest of the Malagasy authorities.

In 1881 another dispute was caused by the Touélé affair. Four sailors, while landing goods from a French merchant-ship, were killed by the subjects of the King of Boéni, a vassal of the Hova Queen. The captain of a French man-of-war, which was sent to inquire into the matter, reported that it was a simple case of murder and robbery. The Hova officials, after an investigation, represented that the Frenchmen were smugglers, that they had supplied French Arab colonists with arms and ammunition, which are contraband, and that they and the Arabs fired first on the people of the chief of Majanga who came to stop the unlawful traffic. The French consul, Théodore Meyer, demanded the death of four of the culprits, and a heavy indemnity for the murder in addition to the value of the merchandise. He and his successor, M. Baudais, refused to discuss the Malagasy version of the affair. To the peremptory demand of Baudais for reparation, the Malagasy Government gave way, and paid under protest the $6,000 indemnity for the four French citizens who had been "foully assassinated."

The French Government, at this time in pursuit of its aims of colonial expansion, contemplated the enlargement of the French settlements and the strengthening of its political position in Madagascar. Its agents in Madagascar had pictured in glowing colors the colonial and commercial possibilities of the island, and particularly the importance of the Bay of Diego Suarez as a site for a naval and coaling station to offset the English establishments at Aden and Perim. It claimed a protectorate over the northwest coast, in virtue of a treaty concluded with a Sakalava chief in 1841. The Malagasy Government also claimed the sovereign rights over this country, which before and after the French treaty was invaded by Hova troops. The English advisers of the Hova ministry, actuated by political, religious, and commercial jealousy, encouraged them to deny that France possessed any territorial rights in Madagascar. The military and political protectorate accorded in the treaty with the Sakalavas was construed as a right of agricultural and commercial colonization on Malagasy territory, with the privilege of keeping an armed force for the protection of the settlements. The whole island of Madagascar, including the district already occupied by France, was declared to be subject to the Malagasy Queen. To forestall the French designs of extending the colonial operations in Madagascar, the Hova Government sent an Englishman in 1882 to the northwest coast with a commission to inquire into the extent of the French trade, and the character and number of the French settlements. M. Baudais sent the Prime Minister a dispatch charging the Hova Government with "willfully provoking France, whose patience had already lasted too long," and maintaining the absolute right of France to the protectorate over the northwest coast. The Hovas, relying on English support, prepared to resist the French design by force of arms. Captain Le Timbre, commander of the naval station in the Indian seas, whose ship was anchored in Tamatave, laid an embargo on a Hova vessel that was embarking soldiers and arms for the west coast, and forbade the landing of arms for the Malagasy Government from the American ship Stillman.

The Hova Government then, in July, 1882, announced the intention of sending an embassy with the Foreign Minister Ravoninahitriniarivo at its head to Paris, with full powers "to do whatever they may judge necessary to restore friendly relations between France and Madagascar." The ambassadors were accompanied by two Englishmen, Messrs. Tacchi and Pickersgill. Their object was not merely to explain the claim of exclusive dominion to the French Government, but to seek the support of other governments. They failed in obtaining effective support from England or other powers, though treaties were signed with Great Britain, Germany, and the United States, recognizing the Hova state as the only organized government on the island. Meanwhile Admiral Pierre was sent with a squadron to the coast of Madagascar.

The French admiral arrived in Madagascar in May, 1883. He immediately issued a proclamation to the Hova authorities on the northwest coast, ordering them to leave their posts and abandon the country. The Malagasy Government replied by expelling the Catholic missionaries and all the French citizens from the Malagasy dominions, giving the priests, who had just completed their fine cathedral, a safe-conduct to the French lines. On June 13 occurred the bombardment and occupation of Tamatave. The Shaw incident connected with the operations was taken up by the English Government in a manner that seemed to indicate an intention to uphold the Hovas and their missionary abettors; but when it was closed by the payment of an indemnity and an apology to the aggrieved missionary, no further opposition was offered to the French proceedings. Before the bombardment the French commander presented an ultimatum to the Hova Government, and on its rejection captured Tamatave, driving out the Hova troops and taking possession of the custom-house.

Fortified with the American and German treaties, the envoys returned to Paris. President Ferry received them with polite reserve. In the course of their conferences he received the report of the operations at Tamatave, whereupon he dismissed them with the declaration that negotiations were useless, as the French admiral and consul had ample authority and all the necessary instructions to treat with the Hova Government.

After the return of the mission to Antananarivo, negotiations were reopened with the French representatives. At the second conference, Nov. 24, 1883, the French insisted on the ultimatum. The principal demand is that the Government of the Queen shall recognize the French protectorate over the northwest coast by renouncing the sovereign rights based on the capitulations obtained from the Sakalava leaders in 1841 and 1842, and acknowledging the validity of the French treaty with the Sakalavas. The territory claimed by France was defined as extending from Cape Amber in the north to 16° south latitude, including the town and river of Mojanga. The French plenipotentiaries pointed out that their position was conceded in the treaty of 1862 with Radama, and in the convention agreed to by the Malagasy ambassadors, Nov. 22, 1882, and that the title of Queen of Madagascar does not imply dominion over all the territories included under the geographical name of Madagascar. The Hovas answered that the Queen had paid $240,000 in lieu of the stipulations of that convention, and that the *de facto* rule of the Queen over the disputed district was proved by the presence of Hova troops and officials and the collection of customs duties. On the 26th the Hovas sent in writing their definitive reply to the effect that the Queen could not agree to evacuate any territory, whereupon Admiral Galiber and M. Baudais declared the negotiations at an end.

Queen Ranavalona II died July 13, 1883, and was succeeded by her niece, Rasendranoro Ranavalona III, born in 1860, who married the husband of the late Queen, the Prime Minister Rasaromino.

The French admiral in December, 1883, bombarded the Malagasy ports, destroying a considerable amount of English property. The Hovas, despairing of foreign aid, now offered to accept the terms demanded by Admiral Galiber, viz., the abandonment of the northern district between Cape St. André and Cape Bellone, the right of leasing or owning land in the Malagasy kingdom, and the payment of 1,000,000 francs war indemnity and the value of the foreign property destroyed. The civil representative of the French Republic insisted on imposing the further condition that the Queen should acknowledge the suzerainty of France over Madagascar, and agree not to accept the protectorate of any other power. This was rejected, whereupon the military operations were resumed, and Fenerive, Mahanoro, Mahela, Manansari, and Marunzang were bombarded, and a blockade declared along the whole coast. Wherever a landing-party came ashore, the Hovas defended themselves effectively. The French held only Tamatave and Majunga. They brought volunteers from Nossi-Bé and Réunion and mercenaries from Mozambique, but were unable to accomplish any results on land. The Hova Government in the capital, 150 miles inland, across mountains and pathless forests, felt secure from attack. The blockade was not effective, but only turned the trade away from the chief ports to others that the few French ships could not guard. No attempt was made to occupy the disputed territory nor to capture the Hova fort at Antomboka on Cape Amber. Vohimar on the northeast coast was bombarded and the English quarter destroyed, while the part where the Hovas live escaped. At Maroantsetra, on the east coast, the French effected a landing. Towns near Ste. Marie were bombarded twice, and one five times. The places on the coast near Tamatave were shelled twice, but no troops were landed. The French had an ally in the Sakalava Princess Benao, who rebelled against the Hova Queen and attacked the camp of the Hovas at Manongarivo, on the northwest coast. Not receiving the expected assistance from the French, she was beaten and made her submission. Near Tamatave, which was strongly fortified by the French, the Hovas encamped just out of range of the naval guns.

During the unhealthy season, while military operations were at a stand-still, the French resumed diplomatic negotiations. They invited the Malagasy authorities to propose a demarkation-line, but found them determined in the resolve to relinquish no part of the mainland, though they offered to cede the islands of Nosifaly and Nosimitsio, and to pay an indemnity. Admiral Galiber then broke off his negotiations with the Hova Governor of Tamatave. On May 8 he was succeeded in the command by Admiral Miot, who established a blockade at Mahaoro, which had become the center of the foreign trade, and announced that the blockade of Fenerive and other ports would follow. The Hovas made overtures to the new commander, who in a dispatch dated June 10, 1884, declared that friendship could only be restored by accepting his terms, which were the unconditional surrender of the northwest coast and indemnities to French citizens who had suffered by the military operations. With Admiral Miot large re-enforcements were sent. The French Cabinet obtained a vote of credit of 5,000,000 francs for the operations of the year. The effective strength of the naval and military force attached to the Indian station was eleven war-vessels with 2,224 officers and sailors and 1,242 infantry and artillery, besides 600 marine fusiliers from Tonquin, and 600 volunteers from Réunion. No movement from Tamatave on the Hovas' lines was made after January, when a French force of 500 men was driven back with loss. In July fresh troops brought the French force up to 1,500. The Hovas were intrenched six miles behind Tamatave in great force. Their regular troops were armed with Remingtons. They had four or five field-guns and several machine-guns of their own manufacture. The blockade established with the strengthened naval force seriously hampered trade. The French officers permitted neutral vessels to enter the ports, but placed them under troublesome restrictions. The port of Mahanoro on the east coast was shelled August 22. The French began to occupy the district that they wished to annex. In September two points were occupied in the bay of Passandava, opposite Nossi-Bé. The Sakalavas, who had hitherto been hostile, received the French amicably. Malagasy volunteers enlisted in the French service. About the 1st of October the Hovas attacked with a small force one of the French posts in the Bay of Passandava and were repelled with loss. On December 6 the French carried a fort south of Vohemar, killing 200 Hovas. The French were not strong enough for the contemplated advance upon the Hova capital, and after the beginning of the wet season in November such an operation was impossible until the return of the dry winter season. The English Government endeavored to bring about an understanding between France and the Hovas, but could exert no influence over the "Methodist preachers" whom the French blamed for causing their difficulties in Madagascar.

MAINE. State Government.—The following were the State officers during the year: Governor, Frederick Robie, Republican; Secretary of State, Joseph O. Smith; Treasurer, S. A. Holbrook; Attorney-General, Henry B. Cleaves; Superintendent of Common Schools, N. A. Luce; Insurance Commissioner, Oramandel Smith; Railroad Commissioners, A. W. Wildes, John F. Anderson, and D. N. Mortland. Judiciary, Supreme Court: Chief-Justice, John A. Peters; Associate Judges, Charles W. Walton, Thomas F. Haskell, Charles Danforth, William Wirt Virgin, Enoch Foster, Artemas Libbey, and Lucilius A. Emery.

Finances.—The following is a review of the finances of the State for the past two years:

Cash on hand Jan. 1, 1883	$474,704 52
Receipts during the year	1,386,684 63
Total	$1,861,389 15
Expenditures	$1,773,784 96
Cash in treasury Dec. 31, 1883	87,604 19
Total	$1,861,389 15
Cash on hand Jan. 1, 1884	$87,604 19
Receipts during the year	1,807,648 11
Total	$1,895,252 30
Expenditures	$1,202,932 89
Cash in treasury Dec. 31, 1884	192,319 41
Total	$1,895,252 30

The liabilities, Jan. 1, 1884, were $6,468,921.88; Jan. 1, 1885, they were $6,399,720.20. The actual net indebtedness of the State was reduced during the year 1883, $108,334.37; during the year 1884, $267,276.60. The total bonded debt, less the sinking fund:

Jan. 1, 1883, was	$4,178,715 00
Jan. 1, 1884, was	3,607,508 00
Jan. 1, 1885, was	3,439,800 00

showing a reduction of $571,207 for the year 1883, and $167,708 for the year 1884.

The net reduction of indebtedness of all the counties of the State for the year ending Dec. 31, 1882, appears to have been $61,436.91; for the year ending Dec. 31, 1883, $34,918.97; total for the two years, $96,357.88; which is an average of $48,178.94 per annum, or nearly one fourth of the entire indebtedness of all the counties. The net reduction of indebtedness of the cities, towns, and plantations of the State for the year ending March, 1883, appears to have been $396,655.81; for the year ending March, 1884, $428,368.05; total for the two years, $824,023.86, which is an average of $412,011.93 per annum, or about one twenty-third of the entire municipal indebtedness of the State.

Savings-Banks.—In 1860 the deposits in savings-banks were $1,466,457.56. In 1879 the deposits amounted to $23,052,633, while at the close of 1884 the aggregate was $32,913,835.10, which shows in twenty-five years a gain in deposits of $31,000,000; in five years an increase of nearly $10,000,000, and further comparison shows an increase of $3,409,945.45 over the total deposits of two years ago. The number of banks is fifty-four. The present number of depositors having open accounts is 105,680, or about one sixth of the entire population. The average amount to each depositor is $311.44. The banks, however, are able to pay to the depositors four per centum, and hold a reserve fund, for the protection of depositors against possible losses, of $1,100,000. The aggregate dividends paid to the depositors in 1884 was $1,284,444.80; and the State received, for taxes upon deposits, as a part of the school fund, $191,817.63—a larger revenue than it ever before received in a single year from that source.

College of Agriculture.—This college has graduated 206 students. Of this number who are in active business, 11 per cent. only are engaged in the so-called professional pursuits, while 89 per cent. are engaged in varied industries, in which agriculture and mechanical pursuits are well represented. The whole number of students who have enjoyed the advantages of this institution is 532, which does not include 92 students now catalogued in the college. The institution has received from the State $200,818, and there has been expended on grounds, buildings, apparatus, stock, etc., $150,000. The appropriations from the State for current expenses have been less than $3,500 per annum.

Industrial School for Girls. — The Industrial School for Girls is at Hallowell. For some time the single building has been overcrowded, and new demands for admission have had to be refused. This makes necessary another edifice. Private benevolence has been enlisted for this institution, and during the year an appeal for aid was made by its trustees and friends, and thereby about $7,000 have been secured. This is in addition to the $13,500 contributed from private sources and expended on buildings now in use. The new private subscription has been used, under the direction of the trustees, to build the foundations, walls, and roof, and to finish the exterior of a substantial edifice of granite and brick.

Reform School.—The health of the boys for the past two years has been remarkably good. The average number in the school has been about one hundred. The law of the last Legislature, providing for the establishment and maintenance of a mechanical department at the Reform School, in which boys can be instructed, has been complied with. Instruction in this department began Dec. 21, 1883, under the charge of a competent mechanic, in a building erected for the purpose, equipped with benches, tools, and machinery, and capable of accommodating twenty-four boys. The results, and the proficiency made by the boys, in this department, seem to vindicate the wisdom of the law establishing it.

Insane Hospital.—This institution has a substantial structure of granite and brick, which is complete with all the modern improvements that science and experience have devised. It is the growth of the public contributions of forty-four years. The State has now provided all that seems necessary for the wants of its insane for many years. The trustees have built during the past two years two new pavilions, capable of accommodating about 100 patients, and giving an opportunity for a better classification. The necessity for a full completion of the buildings required an expenditure of $13,443.44 in excess of the appropriation of $40,000. The receipts of the hospital for 1884 were $100,000, and the disbursements $97,000. The present resources are $51,291.84, and the liabilities $30,513.58, leaving the net resources $20,778.26, as against $18,116.63 in 1883. The number of patients Dec. 1, 1884, was 460, the same number as in 1883, but the whole number under treatment during the year was 667, of whom 207 were discharged.

Home for Soldiers' Orphans.—The appropriation for the Bath Military and Naval Orphan Asylum for the past two years, amounting to $14,000, was fully expended for the orphan children of the soldiers and sailors of the State. There are fifty-two children under its care. The number of orphans coming under the provisions and requirements of the present law as competent for admission is constantly diminishing.

State Prison.—The State Prison at Thomaston appears to be in better condition, so far as cost is concerned, than for many years. From 1858 to 1880 the average annual cost of the prison to the State was upward of $22,000. In 1880 it was $24,551; in 1881, $16,754; in 1882, $14,742; in 1883, $10,510; in 1884, $9,200. The earnings of the convicts in 1884 would pay the salaries, pay-roll, and all the incidental expenses of the prison, amounting to $17,850, leaving only $9,200 for the State to pay.

At present but two departments of work are carried on within the walls—harness and carriage making. The total net assets of the prison at the close of 1883 were $91,435.35, and at the close of 1884, $102,672.61.

The number of new convicts received in 1883 was 70; discharged, 44; total number at the end of the year, 160. The number received in 1884 was 52; discharged, 49; total number at present, 163.

Manufactures. — There was an increase of spindles in the cotton-mills in the State in 1883, as compared with 1880, of 90,261, and of employés, 3,039. During 1884, 6,852 spindles were added. At the beginning of the year, woolen manufacture generally was very depressed, but later in the season there was marked improvement, and the mills of the State did a lucrative business. The amount of starch manufactured in 1884 was larger than ever before, the product being 7,385 tons. Several new factories were erected. The granite business was well sustained; the product of the State quarries was increased over the previous year; and the yield of lime-kilns nearly equaled the large product of 1883. The lime manufactured in Knox county amounted to 1,495,852 barrels in 1883, and 1,478,996 barrels in 1884. The manufacture of leather still remains in a very unsatisfactory condition, and that of lumber has fallen off somewhat; the cut of logs on the principal waters being about 17 per cent. less in 1884 than in 1883. Boot and shoe manufacturing made a marked improvement in 1883, and maintained its prosperous condition during 1884.

Shipping.—In this interest Maine has been of late years more favored than most other States. According to the census of 1880, the number of vessels of all rigs, including steamers, owned in the State, was 2,674, having a capacity of 509,284 tons; according to the returns received from collectors of customs for the year ending Sept. 30, 1883, the number of vessels was 2,899, having a capacity of 626,122 tons; and for the year ending Sept. 30, 1884, the number of vessels was 2,868, having a capacity of 628,954 tons. This shows an increase of capacity for 1883 over 1880 of 18,837 tons; an increase for 1884 over 1883 of 832 tons, and an increase for the four years of 19,669 tons—which is an average of 4,917 tons per annum. There appears to have been a gain of 3,145·37 tons in fishing-vessels belonging in the State in 1884, as compared with 1880—an average of 786·34 tons per annum. The tonnage of vessels of all rigs built in Maine annually since and including 1880 is as follows: 1880, 35,847·15; 1881, 58,992·93; 1882, 75,084·91; 1883, 74,708·13; 1884, 46,401·87.

Polls and Estates.—By returns from nearly all the cities, towns, and plantations of the State, it appears that there was an increase of taxable polls for the year ending March, 1883, of 2,036, and for the year ending March, 1884, of 1,495; total for the two years, 3,533. This indicates an increase of 8,762 in population for the former year, and 6,425 for the latter year, making a total increase of 15,167 in population for the two years, or an average increase of 7,098 per annum. There also appears to have been an increase in taxable valuation of estates for 1883 of $3,894,855, and for 1884 of $1,022,482; total increase for the two years, $4,917,337—an average of $2,458,668 per annum.

Indebtedness.—The liabilities of the State on all accounts Jan. 1, 1884, were $6,468,921.88; resources on all accounts, $2,693,583.67; net indebtedness, $3,775,338.21. The liabilities of the counties on all accounts Jan. 1, 1884, were $380,589.67; resources on all accounts, $288,092.90; net indebtedness, $92,496.79. Net indebtedness of towns and cities, 1884, $9,925,206.17. Total public indebtedness, not including school-district indebtedness, $13,403,041.17.

Education.—Steady progress has been made in its school system since Maine became an independent State. There is not a large town in the State but has adopted a graded system, and everywhere there have been increased facilities for a higher education.

Following are some of the statistics showing educational progress for the school years 1881–'82 and 1883–'84:

	1881-'82.	1883-'84.
COMMON SCHOOLS:		
1. Current expenses for common schools .... Gain, $67,733.	$952,349	$1,020,082
2. Total expenses, including supervision of new school-houses .... Gain, $52,216.	$1,081,834	$1,134,050
3. Amount of school-money voted by towns .... Gain, $26,496.	$641,484	$667,970
FREE HIGH-SCHOOLS:		
1. Number of towns having free high-schools.............. Increase, 14.	109	123
2. Total amount expended for same .... Increase, $11,001.	$88,872	$99,873
3. Amount of State aid paid .... Increase, $3,638.	$19,250	$21,888
4. Aggregate number of weeks of school .... Increase, 515.	2,635	3,140
5. Whole number of pupils in school .... Decrease, 623.	10,374	9,751
6. Average attendance .... Increase, 1,080.	6,703	7,783
7. Number of teachers instructing our schools .... Increase, 211.	571	782
NORMAL SCHOOLS:		
1. Number entering—		
Gorham..................	46	53
Farmington..............	51	61
Castine..................	96	106
Totals .... Increase, 27.	193	210

Farm Statistics.—The number of farms in towns throughout the State in 1884 was 61,449; number occupied by owners, 55,716; number occupied by tenants, 2,806; number unoccupied, 1,684; taxable valuation of all farms and farm-buildings, $52,967,846; number of horses in towns, April 1, 1884, 81,247; number of colts, 13,662; number of oxen, 39,097; number of cows, 127,296; number of young cattle, 125,491; number of sheep, 532,965; number of swine, 43,994; taxable value of all live-stock, $12,203,103; taxable valuation of all property used for manufacturing, $20,710,487.

Deaf, Dumb, and Blind.—The State beneficiaries of these classes are maintained in three institutions. The following table gives detailed information:

INSTITUTION.	Number of Maine beneficiaries.	Amount paid for 1884.
Portland School for the Deaf.....	41	$6,956 25
American Asylum for the Deaf...	21	3,685 21
Perkins Institute for the Blind...	16	4,225 00
Total......................	78	$14,866 46
Appropriated by the State	..	14,000 00
Deficiency	..	$866 46

State Pensions.—The laws of the State make it incumbent upon the Governor and Council to distribute an annual appropriation for disabled soldiers and seamen. The appropriation for 1883 and 1884 was $20,000 for each year. During the year 1883, $19,818.46 was carefully paid out to 571 State pensioners, as follows, viz.: To 283 invalids, 168 widows, 83 mothers, 27 fathers, nine guardians of adult and orphan children, and one dependent sister. During 1884 the number of applications received was 742. The number making application for the first time was 140, and of the total, 225 do not receive United States pensions. The appropriation of 1884 was exhausted.

Prohibition.—By a resolve of the last Legislature, an amendment to the Constitution of the State, forever prohibiting the sale of intoxicating liquors, was submitted to the voters of Maine, at the election in September, and the return of 70,783 votes for its adoption, and 23,811 votes against it, indicates an emphatic declaration in favor of prohibition. During the year there were 818 prosecutions for violating the liquor law, and 163 prosecutions for maintaining nuisances, making a total of 981 cases, against an average of 588 for the past six years.

Taxes.—On this subject the Governor addresses the Legislature as follows:

> A new system of taxation was inaugurated in 1874, which has received popular sanction. This departure has already removed a part of the burden from the great productive industries of the State, by placing a more just proportion of the tax on corporations and other business industries never before taxed. The Governor and Council of 1884 assessed a tax of this character on railroad, telegraph, telephone, and express companies, amounting to $110,586.62. The tax on insurance companies paid into the office of the State Treasurer the past year amounts to $16,766.44.

Political.—The Republican State Convention met in Bangor in April, chose delegates to the National Convention of the party, and nominated Frederick Robie for re-election as Governor, and candidates for presidential electors. Among the resolutions adopted were the following:

> *Resolved*, That this convention request the coming Republican National Convention to provide that in all future national conventions representation shall be proportionate to the Republican votes cast for President in the last preceding presidential election.
>
> We reaffirm our approval of the policy of prohibiting the dram-shop, and our sympathy with every judicious movement looking to the amelioration of the evils of intemperance.

The Democratic State Convention met in Bangor June 17, and took similar action. Its nominee for Governor was John F. Redman. The platform included the following:

> *Resolved*, That we are in favor of some system of reform in the civil service by which appointments to office may be separated from the domain of party politics, and not be either a reward to partisans or used to secure further advancements of those in whom the power of appointments resides.

The straight Greenback State Convention was held in Augusta on the 30th of April. W. F. Eaton was nominated for Governor. On the following day the Prohibition Home Protection party nominated William T. Eustis for Governor. In October the "People's" party held a convention in Portland, adopted a platform, and nominated presidential electors favorable to Benjamin F. Butler. At the election on the 8th of September the Republicans were successful. Four Republican Congressmen and 31 Republican Senators were elected, unanimous delegations. Of the members of the House of Representatives, 115 are Republicans, 33 Democrats, 2 Greenbackers, and one an Independent. The vote for Governor gave Robie 78,818; Redman, 58,503; Eaton, 3,017; Eustis, 1,151.

The following was the vote for Presidential Electors on November 4: Blaine, 72,209; Cleveland, 52,140; Butler, 3,952; St. John, 2,160; Blaine's plurality, 20,069.

HANS MAKART.

MAKART, HANS, an Austrian painter, born in Salzburg, in 1840; died in Vienna, Oct. 3, 1884. He entered the Vienna Art School after completing his studies in the gymnasium in 1858. In a few months he was dismissed for lack of talent. A painter, who knew the talent of the silent, dreamy youth, and the rare æsthetic sensibility that he inherited from his mother, took him into his *atelier* in Munich, where he assisted in arranging collections of art. In 1861 Piloty received him in the list of his pupils, of whom he soon became the most famous. His first painting was "Lavoisier in Prison," painted in 1862. The "Afternoon Entertainment of Noble Venetians," produced the following year, showed his talent for brilliant and harmonious coloring. He readily found purchasers, and with the price of the two pictures made art-journeys to Paris, London, and afterward to Italy. His next works were "Falstaff in the Wash-basket," "The Knight and the Water-Fairies," a "Leda," and a landscape with Roman ruins. These lesser productions were followed by his famous series of paintings, "The Plague in Florence," which established his reputation, and created an excitement throughout Germany. The admiration of his brilliant coloristic treatment, wonderful carnation, and powerful composition, was offset by the indignation of those who were shocked at the daring realism with which he depicted the orgies of the despairing. The painter's fame as a colorist was extended by the "Modern Amorettes," painted in 1868. In 1869 he accepted the invitation of the Emperor Francis Joseph to settle in Vienna. The large studio given him was furnished so splendidly and fantastically that it became one of the sights of Vienna. Here he painted his two allegorical pictures called "Abundance," representing the gifts of the earth and of the sea. Finding his rooms too small, he built a new *atelier*, which he decorated in like manner, in 1872. In 1873 he completed the colossal canvas of "Catherine Cornaro." His design for the curtain of the Stadttheater and the sensuous "Cleopatra" had more of the dramatic power of his first great work. The winters of 1875 and 1876 he spent, under his doctor's advice, in Egypt, where he made the studies for his "Nile-Hunt" and other Egyptian pieces. His designs and arrangements for the historical procession of April 24, 1879, in honor of the Emperor's silver wedding, were an artistic triumph. That year he completed the series of "The Five Senses," which was followed by other symbolical representations, such as "Morning," "Noon," "Evening," and "Night," "Summer" and "Spring," etc. The "Chase of Diana," painted in 1880, was one of the finest representations of the German type of female beauty. The "Entry of Charles V into Antwerp" gave new force to the moral indignation at Makart's nudities, and was described as a glorification of flesh. The "Two Friends," "The Dream," "In the Springtime," and other smaller paintings, are modest as well as lovely presentments of female beauty. "Messalina" is a portrait of the actress Charlotte Wolter. His last great work was a "Judith," a strange and powerful conception. Makart worked with astonishing rapidity, finishing the large painting of the "Hunt on the Nile" in two weeks. Frequently he made no sketches, but painted the figures directly upon the canvas. In the handling of the brush, in flesh-painting, in the treatment of stuffs, in chiaroscuro, in brilliant effects of color, Makart produced results that had never been attained in Germany, and that had an improving influence in the technique of painting, while the reduction of the art by him to a merely sensuous and decorative standard was deplored by many as a deteriorating influence. The influence of the great colorist affected the taste of the nation, and extended to all the trades in which color is employed for ornament. No German painter did as much as Makart to kindle the love of art that characterizes the younger generation in Germany. His style was as free from artifice as from the trammels of academic tradition. His character was amiable, open, free from envy and spite, and reckless of all selfish considerations. He was so careless in choosing and mixing pigments, that some of his finest paintings have already faded; so absorbed in his art and restless in his haste to realize his conceptions, taking his only relaxation in merry feasts, that his neglect to take the needed repose brought on his early death. Makart was twice married—first to a Vienna lady, who bore him two children; and in 1882, several years after her death, to a theater-dancer, Bertha Linda, who carefully tended him through his last sufferings.

MANITOBA. The most important events affecting Manitoba in 1884 are those connected with the Ontario boundary case. (See DOMINION OF CANADA.) The effect of the decision in that case is to give Manitoba an eastern boundary at the meridian traversing the northwestern angle of Lake of the Woods. However, the Privy Council took the view that, as the Dominion Government, at the time of the Manitoba Boundary Extension Act, held the western boundary of Ontario to be the meridian of the junction of the Ohio and Mississippi rivers, therefore the Province of Manitoba, where not conflicting with Ontario, is entitled to the territory east of that meridian. Therefore, according to that view, the southeastern boundary of Manitoba is the meridian of the northwestern angle of Lake of the Woods as far north from the Minnesota border as English river; thence up the English river, through Lakes Lonely and Joseph, and down the Albany river, eastward, to the meridian of the Ohio and Mississippi; thence north along that meridian till it intersects the northern parallel of the province.

Climate.—The average rainfall in 1884 was, for August, 4·22 inches; for September, 3·633 inches—a quantity much in excess of the average. The following indicates the temperature, rain, and cloud in Manitoba from May 15 to September 15, from 1872 to 1884, and also contrasts Manitoba with Toronto and Montreal for the year 1884:

CLIMATIC FEATURES.	Manitoba.		Toronto, 1884.	Montreal, 1884.
	Average, 1872–'83, inclusive.	1884.		
Temperature:				
Mean	61·11°	59·85°	62·89°	64·56°
Mean highest	73·44	68·74	72·77	73·70
Mean lowest	48·78	49·01	52·90	55·42
Mean daily range	24·66	19·78	20·77	18·28
Absolutely highest	93·7	88·5	89·6	91·01
Absolutely lowest	29·0	30·7	33·5	33·5
Range of period	64·7	57·8	56·1	57·5
Rain:				
Number of days	44	48	46	47
Amount of rain	13·098	14·525	7·895	12·646
Heaviest fall in 24 hours	....	3·33	0·885	1·200
Cloud:				
Mean amount	0·47	0·47	0·50	0·52
No. of days clouded	19·	20·	18·	31·
No. of days clear	18·	18·	19·	8·

Crops.—The hay cut in Manitoba during 1884 was: prairie hay, 226,854 tons, yielding 1·72 tons an acre; of cultivated grasses and clovers, 7·087 tons, yielding 1·25 tons an acre.

The wheat-crop, the all-important element in a Manitoba farmer's life, has been carefully watched for several years. The years 1883–'84, on account of their extreme coldness, and of the rains in 1884, have afforded strong tests as to the capabilities of the province to produce wheat. Farmers have already learned not to sow on spring-plowed land if it is possible to have fall-plowed; and to sow as early as the season will permit, for the spring months are often very dry. Good crops may be harvested from spring plowing if the grain be well bedded and get an even start; but it ripens later than that on fall plowing, hence is more exposed to frosts. In 1883 the acreage under wheat was 260,842 acres. The yield was over 5,686,355 bushels, or an average of 21·80 bushels an acre. In 1884 the acreage was

309,281 acres, an increase of over 18 per cent., yielding a total of 6,804,182 bushels, and an average of 22 bushels an acre.

The following are the fixed standards for grading Manitoba wheat:

No. 1. *Hard Spring Wheat.*—Red Fyfe wheat containing not more than 10 per cent. admixture of softer varieties; must be sound, well cleaned, and weigh not less than 60 pounds a bushel, imperial measure.

No. 2. *Hard Spring Wheat.*—Same as No. 1, only reasonably clean, and weigh not less than 58 pounds a bushel.

No. 1. *Spring Wheat.*—Must be sound, well cleaned, and weigh not less than 60 pounds a bushel.

No 2. *Spring Wheat.*—Same as last, only reasonably clean, and weigh not less than 58 pounds a bushel.

No. 3. *Spring Wheat.*—Comprises all wheat fit for warehousing, not good enough for No. 2, and weighing not less than 56 pounds to the bushel.

Rejected Spring Wheat.—Comprises all wheat fit for warehousing, but too low in weight or otherwise unfit for No. 3.

All good wheat, slightly damp, is reported "no grade," with the inspector's notation as to quality and condition. All wheat in a heating condition, or too damp for safe warehousing, or with any considerable admixture of foreign grain or seeds, or that is badly *bin-burned*, is reported "condemned," with inspector's notation as to quality and condition. Wheat containing "goose wheat" is graded "rejected." Wheat containing smut or sprouted kernels, in however slight degree, is in no case graded as high as No. 1 in its class.

The average date of beginning to cut wheat is August 27, and of ending, September 28.

The following table exhibits the varieties of grain sown, the dates of ripening, and the average per acre:

VARIETIES.	Average ripened.	Averaged in bushels per acre.
Red Fyfe wheat	Aug. 23	22·43
White Fyfe wheat	Aug. 29	24·
White Russian wheat	Sept. 3	25·83
Golden-drop wheat	Aug. 27	23·18
Lost-nation wheat	Sept. 4	25·83

As compared with 1883, the oat-crop of 1884 is four bushels an acre below the average, and the quality is slightly lower. In 1883 there were sown 215,431 acres of oats, which yielded 9,478,964 bushels; in 1884, 128,487 acres, yielding 5,107,079 bushels.

Barley, in 1884, averaged two bushels an acre more than in 1883. The acreage in 1883 was 60,281 acres, with an average yield of thirty bushels an acre, or a total of 1,808,430. This year there were only 40,936 acres, an average of 32·83 bushels an acre, and a total yield of 1,343,928 bushels. The falling off in the acreage of both barley and oats is attributed to lack of facilities for marketing the grain. Peas yielded well, though the area sown is not large. Potatoes yielded 201 bushels an acre in 1884; turnips, 392 bushels; mangolds, 356 bushels; carrots, 223 bushels; and beets, 275 bushels. Wild hops, "equal to the best grown in Ontario or York State," are very abundant on the prairies. They have been picked for market in some districts. Nearly all the garden-fruits are found growing wild in abundance. Many cultivated varieties of them have been introduced. Apples have not yet been very successful, chiefly because the young trees were raised in southern climates. Experiments have been tried with grafting on native roots, and the results are very satisfactory. Some large farmers have undertaken to import apple-trees from Russia.

Protecting Stock.—A very strict veterinary sanitary service is in operation in the province, to prevent the spread of disease among farm-stock. Several horses were destroyed on account of disease. The inspectors travel throughout the province, wherever called on, and have done much to prevent the spread of disease.

Route to Europe.—During the year the people of Manitoba have directed much attention to the proposed route to Europe *via* Hudson Bay. Experiments are being made, under the auspices of the Federal authorities, to test the navigation of the bay and the straits, and there is little doubt that they are easily accessible at almost all seasons. The route to Liverpool would be only 2,960 miles by water from Fort York, several miles shorter than from Montreal. As there is no immediate necessity for the new route, it is probable that the opposition of the older provinces will be successful for some years in turning trade from the bay to the Montreal or St. Lawrence outlet.

Property Value.—During 1883 the prices of property in Manitoba fell to their normal market value. Prior to that date the prices demanded for property were high. At the reduced valuation the assessments show about $100,000,000 to be the value of property in Manitoba.

New Railways.—Railways to Hudson Bay are projected, and one is actually under construction. The two points aimed at on the bay are Fort York and Fort Churchill—the former at the mouth of Nelson river, the latter at the Churchill. One railway is projected east of Lake Winnipeg, another west of it. The country traversed by the western survey is, on the whole, suited for farming, and will probably be taken up by settlers as soon as the road is built. Railways were also extended toward the northern parts of the province. There are two running northwesterly from the Canadian Pacific Railway, through a well-settled district; these are the Souris and Rocky Mountain Railway and the Manitoba Northwestern Railway. Both are constructed, and the latter is in running order for many miles.

Legislation.—In 1884 the province was divided into counties, with municipal government for both counties and townships. The School Acts were consolidated. The Medical Act was amended in the matter of the formation of the board. Election laws were made more stringent. A Bureau of Industries was organized. And strict laws were passed concerning diseases among animals.

MARYLAND. State Government.—The following were the State officers during the year: Governor, Robert Milligan McLane, Democrat; Secretary of State, Robert B. Milligan; Attorney-General, Charles B. Roberts; Treasurer, Barnes Compton; Comptroller of the Treasury, J. Frank Turner; Adjutant-General, Colonel James Howard; Commissioner of the Land-Office, J. Thomas Scharf; Commissioner of Taxes, Levin Woolford; Commissioner of Insurance, Jesse K. Hines; Commissioner of Labor Statistics, Thomas C. Weeks. Judiciary, Court of Appeals: Chief Judge, Richard H. Alvey; L. T. H. Irving, John M. Robinson, George Yellott, Oliver Miller, John Ritchie, Frederick Stone, and William Shephard Bryan, Associate Judges.

Legislative Session.—The Legislature met on Jan. 2, and adjourned on March 31, having enacted 521 laws, among which were these:

Establishing a mining-school in the county of Allegany, in connection with the public free-school system of the State; regulating the taking of oysters in the Potomac river; to prevent the spread of infectious or contagious diseases among the live-stock of the State; regulating the running of traction-engines on the public roads of the State; providing for the collection of statistics and information concerning the various branches of industry practiced in the State, and the needs thereof, and the abuses that exist therein (establishes a Bureau of Statistics and Information under a chief appointed by the Governor with the consent of the Senate); subjecting to assessment and taxation all bonds or certificates of debt bearing interest issued by any railroad or other corporation of the State secured by mortgage of property wholly within the State; authorizing the voters of various counties to determine by ballot whether intoxicating liquors shall be sold therein; to prevent and punish frauds in the sale of oysters sold in hermetically sealed tin cans; forbidding marriages between white persons and persons of negro descent to the third generation; to protect the health of those employed in factories, manufacturing establishments, and workshops in the State; providing for the protection of the property of railroad companies and of property in railroad-cars and carriages, and to punish offenses against the same; providing for the appointment of a commission to inquire into the expediency and utility of draining the marshy districts of Maryland, and the practicability of cultivating the eucalyptus-tree in the malarious districts; for the prevention of fraud in canned goods, and for the protection of consumers thereof; establishing a uniform standard of time throughout the State (75th meridian); prohibiting the creation in future of irredeemable ground-rents; and regulating the leasing of land.

On the 18th of January Ephraim K. Wilson, Democrat, was chosen United States Senator.

Political.—The following was the vote for Presidential Electors on the 4th of November: Republican, 85,747; Democratic, 96,931; Prohibition, 2,792; Greenback, 573. The vote for Congressmen was as follows:

DISTRICT.	Republican.	Democratic.
First	14,641	16,726
Second	14,008	16,834
Third	10,756	16,032
Fourth	14,324	15,726
Fifth	14,641	15,612
Sixth	17,995	16,379

In the Third District, the Prohibition candidate received 555 votes, and in the Fourth 621. The following is the registered vote of Maryland:

COUNTIES.	White.	Colored.	Total.
Allegany	7,378	850	7,678
Anne Arundel	3,790	2,914	6,704
Baltimore city	66,460	12,168	78,628
Baltimore county	15,380	2,220	17,600
Calvert	1,282	1,255	2,537
Caroline	2,287	927	3,214
Carroll	7,399	489	7,888
Cecil	5,548	1,059	6,607
Charles	1,903	2,126	4,029
Dorchester	3,748	1,820	5,568
Frederick	10,016	1,668	11,684
Garrett	2,871	29	2,900
Harford	5,560	1,477	7,037
Howard	2,687	916	3,603
Kent	2,945	1,975	4,920
Montgomery	4,166	2,034	6,200
Prince George's	4,080	2,617	6,697
Queen Anne's	2,946	1,608	4,554
Somerset	3,285	1,841	5,126
St. Mary's	2,230	1,759	3,989
Talbot	3,104	1,801	4,905
Washington	8,255	760	9,015
Wicomico	3,252	1,026	4,278
Worcester	3,058	1,437	4,495

Taxation and Assessment.—The State tax rate for public schools and State debt, for 1884, is 18¾ cents on $100. The assessment that forms the city and county tax basis is:

Allegany	$18,156,000 00
Anne Arundel	10,836,927 36
Baltimore city	249,000,000 00
Baltimore county	61,766,429 00
Calvert	2,217,268 00
Caroline	4,051,281 00
Carroll	16,000,000 00
Cecil	14,154,064 00
Charles	3,478,176 00
Dorchester	6,114,405 00
Frederick	24,940,691 00
Garrett	3,763,525 00
Harford	12,024,855 00
Howard	7,626,975 52
Kent	7,661,655 00
Montgomery	8,647,560 00
Prince George's	8,000,000 00
Queen Anne's	7,085,605 00
Somerset	4,159,656 00
St. Mary's	2,802,686 00
Talbot	8,986,026 00
Washington	17,622,145 00
Wicomico	3,720,429 00
Worcester	4,873,054 00

Baltimore Statistics.—Baltimore was founded in 1729. It was incorporated in 1797. Its population then was 26,000; its population now is over 415,000. The assessed value of the property in the city then was $2,240,000; the assessed value of Baltimore property in 1883 was $248,803,232, to which should be added Baltimore's share in Baltimore county, which is worth $30,000,000, and Baltimore property unassessed, which amounts to $150,000,000, making a total of over $428,000,000.

The city has thirty-three banks, with a combined capital of over $11,000,000. The census of 1880 showed that it had 2,914 industrial establishments, with 55,835 employés, and annual products of over $70,000,000. In 1883 it received 30,275,000 bushels of grain and 1,250,000 barrels of flour. The total value of the imports was $12,448,302; of the exports, $49,973,204. During the year the city exported

41,444 hogsheads of tobacco, 245,937 bales of cotton, and 11,788,887 gallons of petroleum.

EXPENSES OF THE CITY GOVERNMENT.

For 1880	$3,947,799 27	For 1882	$4,106,877 90
For 1881	4,106,447 84	For 1883	4,256,755 62

The total funded and guaranteed debt of the city is $37,516,991.73. Against $21,779,938.41 of this sum the city has assets that are productive and interest-bearing. On $10,759,406.25 additional, the water department, Western Maryland Railroad, and passenger railway companies are compelled under special city ordinances to pay the interest, leaving $4,877,682.07 to be provided for by the tax levy. Of the funded debt, $22,081,298.19 bears 6 per cent. interest; $11,728,061.54 bears 5 per cent. interest; and $1,856,800 bears 4 per cent. interest.

The public schools in Baltimore number 122. The total value of the buildings, exclusive of the lots on which they stand, is $1,188,686. There are 880 teachers and 38,086 pupils. The Baltimore City College has 604 students; the Western Female High School has 654, and the Eastern Female High School has 445. There are 19 male grammar-schools, 20 female grammar-schools, 80 male primary schools, 80 female primary schools, 5 public English-German schools, and 14 colored schools. The colored pupils are fewer than 5,000. The expenses of the school system vary from $650,000 to $675,000 per year.

The receipts of leading products during the year ending Nov. 1, 1884, were: flour, 658,208 barrels; wheat, 17,191,927 bushels; corn, 6,521,801; oats, 1,653,947; rye, 586,500; barley, 381,837; coffee, 878,418 bags; tobacco, 88,602 hogsheads.

MASSACHUSETTS. State Government.—The following were the State officers during the year: Governor, George D. Robinson, Republican; Lieutenant-Governor, Oliver Ames; Secretary of State, Henry B. Peirce; Treasurer, Daniel A. Gleason; Attorney-General, Edgar J. Sherman; Auditor, Charles R. Ladd; Insurance Commissioner, John K. Tarbox. Judiciary, Supreme Court: Chief-Justice, Marcus Morton; Associate Justices, Walbridge A. Field, Charles Devens, William Allen, Charles Allen, Waldo Colburn, Oliver Wendell Holmes, Jr.

Legislative Session.—The Legislature met on January 2, and adjourned on June 4, after passing 335 acts and 81 resolves, among which were these:

Increasing the pay of members of the Legislature from $500 to $650 per each regular session; raising the salary of the Governor from $4,000 to $5,000, and of the Secretary of State from $2,500 to $3,000; prohibiting the employment of minors under eighteen in mercantile establishments more than sixty hours a week; authorizing ten or more persons to form a corporation to examine and guarantee titles of real estate; dividing Worcester county into two districts for the registry of deeds, the northern district, with office at Fitchburg, and the Worcester district; abolishing the election sermon; providing for the furnishing of free text-books and school supplies to the pupils of the public schools; incorporating the town of Bourne, taken from Sandwich; providing for taking the decennial census and the industrial statistics of the Commonwealth; relating to the transfer of stock in corporations; preventing discrimination by life-insurance companies against persons of color; establishing a reformatory for male prisoners at Concord, and removing the State Prison back to Boston; for the protection of harbors and navigable waters; to prevent the sale or exchange of property, under the inducement that a gift or prize is to be part of the transaction; for ascertaining by proper proofs the citizens who are entitled to the right of suffrage; regulating elections and voting thereat; incorporating the city of Waltham; providing a State tax of $2,000,000; to improve the civil service of the Commonwealth and the cities thereof; establishing a homœopathic hospital for the insane at Westborough; changing the name of the State Reform School at Westborough to the Lyman School for Boys; concerning foreign corporations having a usual place of business in the State.

An amendment to the Constitution was proposed, giving the Legislature power to provide more than one place of meeting in towns for the election of officers under the Constitution. This goes to the Legislature of 1885 for action. The biennial-sessions amendment was defeated. The following propositions also failed to pass: to allow women like privileges as voters with men, in the conduct of municipal affairs, to submit to the people a prohibitory amendment, and an amendment abolishing the poll-tax as a prerequisite to the right to vote.

Finances.—The financial statement is as follows:

Funded debt, Jan. 1, 1884	$31,436,680 90
Funded debt, Jan. 1, 1885	31,432,680 90
Decrease	$4,000 00
Sinking funds, Jan. 1, 1884	$16,836,673 06
Sinking funds, Jan. 1, 1885	17,731,724 94
Actual increase, allowing for payment of loans ($4,000)	$899,052 88
Actual expenses, 1883	$4,777,565 93
Actual expenses, so far as ascertained, 1884...	4,691,744 44

ESTIMATES FOR 1885.

Payments for all purposes	$4,992,365 00
Receipts, in addition to cash on hand, but not including direct tax	4,500,664 89
Deficit	$491,700 11

A State tax of $1,500,000 will cover this deficiency and leave upward of $1,000,000 in the treasury.

The twenty-fourth annual abstract of polls, property, taxes, etc., as assessed May 1, 1884, shows these results: There are 22 cities and 325 towns in the Commonwealth. An increase over the previous year in the total valuation of $25,582,717 is reported. Twenty cities, 205 towns report an increase; 2 cities, 119 towns a decrease. An increase in real estate of $32,341,415 is reported. Twenty-two cities, 242 towns report an increase; 82 towns a decrease. A decrease in personal estate of $6,758,698 is reported. Eleven cities, 158 towns report an increase; 11 cities, 166 towns a decrease. An increase in the total tax of $2,330,117 is reported (State tax increased $500,000); 19 cities, 188 towns report an increase; 3 cities, 136 towns a decrease. Rate of tax per $1,000: 18 cities, 154 towns report an increase; 6

cities, 132 towns a decrease; 3 cities, 38 towns the same rate. The highest rate, viz., $35, is assessed in the town of Monroe, county of Franklin; lowest rate, viz., $4.80, in the town of Stow, county of Middlesex. Fifteen towns report rates from $20 to $27; 17 cities, 86 towns, $15 to $19.60; 5 cities, 169 towns, $10 to $14.80; 53 towns, $4.40 to 9.80. An increase in the number of polls of 13,079 is reported. Nineteen cities, 197 towns report an increase; 3 cities, 112 towns a decrease; 15 towns the same number. Rate of tax on polls: 7 towns report an increase; 4 towns a decrease; 22 cities, 313 towns the same rate. The lowest rate, viz., $1, is assessed in the city of Chelsea, and the towns of Revere and Winthrop, in the county of Suffolk. The highest rate, viz., $2, is assessed in 21 cities and 315 towns. Rates from $1.50 to $1.92 are assessed in 8 towns. An increase of 8,561 dwelling-houses is reported. Twenty-one cities, 222 towns report an increase; 1 city (number incorrectly reported in previous years), 54 towns a decrease; 48 towns the same number. An increase of 6,851 in the number of acres assessed is reported. Five cities, 112 towns, report increase; 6 cities, 79 towns, decrease; 11 cities, 133 towns, the same number.

"Money at interest," etc. An increase in the amount "secured by mortgage" of $1,532,849 is reported. Nine cities, 84 towns report an increase; 5 cities, 105 towns a decrease; 8 cities, 135 towns the same report; of the latter, 6 cities, 112 towns reported no figures in 1883; 8 cities, 144 towns report no figures in 1884. An increase in the amount "unsecured" of $1,588,667 is reported. Ten cities, 91 towns report an increase; 5 cities, 140 towns a decrease; 7 cities, 93 towns the same report; of the latter, 2 cities, 70 towns reported no figures in 1883; 7 cities, 77 towns report no figures in 1884. An increase in the "total" of $3,032,420 is reported. Fifteen cities, 99 towns report an increase; 5 cities, 152 towns a decrease; 2 cities, 73 towns the same report; of the latter, 1 city, 37 towns reported no figures in 1883; 4 cities, 50 towns report no figures in 1884. An increase in the amount of "money on hand," etc., of $2,026,642 is reported. Eleven cities, 72 towns report an increase; 6 cities, 66 towns a decrease; 5 cities, 186 towns the same report; of the latter, 3 cities, 164 towns reported no figures in 1883; 4 cities, 190 towns report no figures in 1884. A decrease in the amount of public stocks, etc., of $4,298,040 is reported. Eight cities, 57 towns report an increase; 9 cities, 58 towns a decrease; 5 cities, 214 towns the same report; of the latter, 8 cities, 164 towns reported no figures in 1883; 4 cities, 194 towns report no figures in 1884. A decrease in the amount of stocks in corporations, etc., of $9,363,853 is reported.

The following are the totals of assessment May 1, 1884: number of polls, 511,907; tax on polls, $1,014,701; value of personal property, $498,427,066; of real estate, $1,258,452,712; total valuation, $1,756,879,778; tax for State, county, city, and town purposes, $28,653,549; money at interest and other debts due the persons assessed more than they are indebted or pay interest for, $66,263,646, of which $15,803,068 is secured by mortgage and $50,085,688 is unsecured; money on hand, including taxable deposits, $24,477,220; public stocks and securities, $61,975,562; stocks in corporations without the State, $62,304,940; number of horses, 149,787; cows, 168,650; sheep, 61,947; dwelling-houses, 300,552; acres of land, 4,501,162.

Troy and Greenfield Railroad and Hoosac Tunnel.—The Legislature of 1883 authorized the Governor, with the consent of the Council, "to conclude a contract between the corporation established as the Troy and Greenfield Railroad Company, by which the entire right and interest which said corporation may have or claim in or to the property known as the Troy and Greenfield Railroad and Hoosac Tunnel, including the Southern Vermont Railroad, and the franchises to operate such property, shall be released to the Commonwealth. An adjustment was effected in 1884 upon a basis of a money payment in consideration of a release to the Commonwealth of all the outstanding adverse interests held by the company, and the establishment of a full title in the Commonwealth to all the tunnel and railroad properties and franchises, subject to an incumbrance in the form of a judgment, on which execution had been levied; and $300,000 was agreed upon in full payment for such release and transfer, of which sum $100,000 was paid to the corporation as consideration for its deed of conveyance and release, and $8 for each of the capital stock of the said corporation assigned to the Commonwealth. The whole number of shares of stock issued was 25,000, of which 21,066 had already been paid for and assigned at the close of the year. The outstanding shares number 3,934, of which 600 stand in the name of the town of Adams, and 330 in the name of Williamstown.

Savings-Banks.—The conservative course that has, in general, marked the management of the savings-banks in the State since the passage in 1876 of the act in relation to these corporations, has placed them in good condition to protect and maintain the interests of their depositors during the present industrial and financial depression. The commissioners submitted the following statement to Oct. 31, 1884:

Number of banks	168
Number of depositors	826,008
Total of deposits	$262,720,146 97
Increase in number of depositors during the year	19,998
Increase in total deposits during the year	$10,112,553 95

Militia.—The authorized force of organized militia is 336 officers and 4,486 enlisted men; the real strength at present is 306 officers and 3,881 enlisted men. The Inspector-General reports that the average attendance, exclusive of the bands, for 1884, shows an increase over 1883 of 326 at the annual drill, and 416 at the encampments.

Public Schools.—The entire amount raised in 1884 for all school purpose was $6,502,859.24, providing an allowance of $19.34 for each child between five and fifteen years of age. Of school age there are 336,195 persons, showing an increase for the year of 6,786. Of all ages there were 342,012 pupils in the public schools, and schools were maintained an average of nine months' time in all the cities and towns, and showed 90 per cent. of attendance based on the average membership. Thirty-eight cities and towns sustained 125 evening-schools, affording instruction to 18,251 pupils. Satisfactory results are shown in the operation of the free text-book law, which went into effect in August. Among other advantages, the new system reduces in a large amount the expense of providing school-books and school-supplies formerly paid by individuals, enables the teachers to effect prompt organization of their schools and a better classification of the pupils at the beginning of the terms, increases the attendance, removes mortifying distinctions possible under the old system, and makes the public schools of the Commonwealth literally free schools, offering equal opportunity to all children alike.

Provincial Laws.—On this subject the Governor says:

> In 1865 and 1867 authority to publish the acts and laws of the Province of Massachusetts Bay was given, and to the present time four volumes have been issued and distributed, and another volume is in the hands of the printer. The expenditures amount to $77,505.75. The work, without doubt, has been well done; but would it not be well to inquire what limit to its extent and cost is reasonably proper? The Governor and Council, to whom the authority for publication is committed, can exercise but little discretion in this matter, in view of the grants of money made by the Legislature from time to time.

Lunacy.—It is estimated that there are now 6,800 insane persons in the population of the State, of whom 5,000 are from time to time in general hospitals and asylums, and about 700 more maintained at public charge. The probable increase in the number of the insane is not less than 200 a year. The State hospitals are four—at Worcester, opened in 1833; at Taunton, opened in 1854; at Northampton, opened in 1858; and at Danvers, opened in 1878—and the cost of their construction has been something like $4,300,000, of which about $3,000,000 was expended between 1872 and 1884 at Worcester and Danvers. These two new hospitals now contain a little more than 1,450 patients, for whose reception and accommodation the State has incurred a construction cost of nearly $2,100 each. The two hospitals at Taunton and Northampton now contain something more than 1,100 patients, at an estimated construction cost of $1,320,000, or $1,200 for the reception and accommodation of each patient. The State asylums for the chronic insane are two—at Tewksbury, opened in 1866, and at Worcester, opened in the old buildings of the Worcester Hospital in 1877. The construction cost of the Worcester Asylum is estimated at $430,000 up to this time, having been accruing since 1831; the cost of the Tewksbury Asylum buildings has not much exceeded $100,000; making a total for these two asylums of about $530,000, for the reception and accommodation of about 690 patients, or something less than $775 for each. The total cost of the State hospitals and asylums, for construction and equipment, has been, by this estimate, about $4,850,000, and their convenient capacity can not be estimated at more than 3,000. They now contain 3,267, having passed the limit of 3,000 during the summer of 1882.

Besides the six State hospitals and asylums, there are three small asylums, essentially public—the McLean Asylum, the oldest in Massachusetts; the Boston Lunatic Hospital, and the Essex County Receptacle, at Ipswich. The McLean Asylum, opened in 1818, is owned by a private corporation, existing for public purposes (the Massachusetts General Hospital). The Boston Lunatic Hospital, opened in 1839, is owned by the city of Boston. The Ipswich Receptacle is owned by Essex county. The cost of these three asylums for construction probably exceeds $250,000 each for the McLean Asylum and the South Boston Asylum, and $50,000 for the Ipswich Asylum. They contain about 430 patients, two thirds of whom are chronic cases, being about equally divided between private patients and paupers. The McLean Asylum contains no paupers, and its average weekly cost for each patient is $15. The Boston Lunatic Hospital contains about 180 paupers of the city, with a few private patients, and its average weekly cost for each patient is nearly $6. The Ipswich Receptacle contains about 50 paupers, whose average weekly cost is $2.50; and a few private patients, for whom $3 a week is paid.

The Prison System.—There are three penal State institutions—the State Prison, at Boston, for male prisoners convicted of grave offenses; the Massachusetts Reformatory, at Concord; the Reformatory Prison for Women, at Sherborn, for such female prisoners as the courts consider likely to yield to its reformatory influences; and the State Workhouse, at Westborough (to be removed to Bridgewater), which receives a portion of the tramps, vagrants, etc. There are also twenty-one county prisons. The Boston House of Industry, at Deer Island, is the largest prison in the State. Its population consists mainly of persons (male and female) committed for non-payment of fines imposed for drunkenness and other offenses against public order and decency, with a few on term sentences.

On Sept. 30, 1883, the number of prisoners in county prisons was 2,270; in other institutions, 1,711. Of these, 295 (272 men and 23 women) were held in the jails to await trial or examination, and 3,686 were sentenced.

The Commissioners of Prisons, as directed by the Legislature of 1884, prepared for use as the State Prison the buildings in the city of Boston formerly occupied as said prison, and the warden transferred all the prisoners, about 450, that had not been removed to the Massachusetts Reformatory. The work of repairing the workshops and setting machinery is still going on, and, contracts for all the available men having been made, the regular course of management will soon be established.

The proceeds received by the State from all contracts, for the labor of the convicts for the year ending Sept. 30, 1884, amounted to $70,117.45. For the year ending Dec. 31, 1884, $33,472.13, allowed for overwork, was credited to the accounts of 529 men.

The Reformatory.—The experiment of a reformatory for male prisoners has been successfully inaugurated at Concord. About 140 men are now in the institution, and a considerable increase is certain. No proposals for employment have been accepted, but various industries will soon be introduced. In most of the essential features, this institution adopts the system that has been so successfully in operation at the Reformatory for Women.

Homœopathic Hospital for the Insane. — The trustees of the Westborough Hospital have been appointed, and the plans submitted by them for the alteration of the buildings and the necessary additions thereto have received the approval of the Governor and Council. These plans apparently answer the wants of the hospital in due provision for the treatment, comfort, convenience, and safety of 325 patients, and for the physicians, officers, and attendants. Satisfactory estimates show that the work will be completed within the appropriation of $150,000 already made. It is hoped that the hospital will be ready for occupancy before the end of 1885.

Lyman School for Boys.—The Governor is of the opinion that this school should be removed to some location other than that designated in the act of the last Legislature, and in that view the trustees of the school and the trustees of the Westborough Hospital concur.

The school, under its present system, will not require for its use a large tract of land or costly and extensive buildings. The number of inmates is reduced by the laws regulating commitment, probation, transfer, and discharge. During several years past the average number has not exceeded 135. Of the 124 boys that left the institution during 1884, the average time of detention was thirteen months, and no one had remained longer than three years and four months.

Other Institutions.—The following are other State institutions: State Almshouse, Tewksbury, with an average of 1,014 inmates in 1884; State Primary School, Monson, 421; State Industrial School for Girls, Lancaster, 65; State School for the Feeble-minded, Boston, 141.

Civil Service.—On this subject the Governor, in his message to the Legislature, in January, 1885, says:

> The Civil Service Commissionrs, appointed undere the provisions of an act passed by the last Legislature, have prepared rules which have been approved by the Governor and Council and which will go into operation on the 30th of March next. Under the authority given them by the act, the Commissioners have limited the application of these rules to those branches of the service in which a considerable number of persons are employed, and in which there is the strongest temptation to use the appointing power for personal or partisan purposes. The system proposed is believed to be perfectly plain and practical, and well adapted to show the relative fitness of applicants for the public service and to secure impartiality in the selections for appointment. The statute now in force seems to be ample in scope and power for present needs, and an extension of the system may be secured by the adoption of other rules.

Political.—The following were the candidates of the different parties for State officers:

	Republican.	Democratic.
Governor	George D. Robinson.	William C. Endicott.
Lieut.-Governor.	Oliver Ames	James S. Grinnell.
Secretary	Henry B. Peirce	Jeremiah Crowley.
Treasurer	Daniel A. Gleason	Charles Marsh.
Auditor	Charles R. Ladd	John Hopkins.
Attorney-Gen'l.	Edgar J. Sherman	John W. Cummings.

	Prohibition.	Greenback.
Governor	Julius H. Seelye	Matthew J. McCaffrey
Lieut.-Governor.	Henry H. Faxon	Albert R. Rice.
Secretary	George Kempton	John B. Sweeney.
Treasurer	Charles R. Knight	Nathaniel S. Cushing.
Auditor	William W. Sherman	Israel W. Andrews.
Attorney-Gen'l.	Samuel M. Fairchild.	Thomas W. Clarke.

At the election on November 4, the Republican ticket was successful. The following was the vote for Governor: Republican, 159,345; Democratic, 111,829; Greenback, 24,363; Prohibition, 8,581; scattering, 34.

For Secretary of State, the vote was: Republican, 168,148; Democratic, 108,378; Greenback, 24,214; Prohibition, 8,334; scattering, 6. The vote for presidential electors was: Republican, 146,724; Democratic, 122,352; Greenback, 24,382; Prohibition, 9,923. Democrats were elected to Congress in the Fourth and Sixth Districts, and Republicans in the other ten. The Legislature of 1885 consists of 34 Republicans, 5 Democrats, and 1 Independent Republican in the Senate, and 166 Republicans, 76 Democrats, and 3 Independents in the House.

MENTHOL. See Drugs, New.

METALLURGY. Iron and Steel.—The "Regia" process for the manufacture of iron and steel, as described by its inventor, Mr. John Lewthwaite, consists chiefly in scattering upon the metal, when it is completely melted, as equably and gradually as possible certain mineral ores in a finely disintegrated or granulated condition, in proportions which are to be determined according to the character of the result sought. The effect is an electro-chemical combination under the operation of which the metal becomes much more fluid, and the impurities are thrown off possibly in a gaseous form or as oxides. Mr. Lewthwaite found that by his method he could produce from common Cleveland pig-metal, with only 4 per cent. of titanic ore, an iron or mild steel, said by smiths, engineers, etc., to be superior even to Low Moor. The process is applicable equally to the Bessemer and Siemens methods, to converters beneath the ordinary blast-furnaces, and to the foundry. From another ore than the titanic, which he did not name, the author could produce a very desirable description of metal never before known to be formed in the foundry, viz., a fine steel casting, soft and pleasant to file, turn, etc., which, when heated to a cherry-red and plunged into water, tempers like ordinary steel, without any show of water-cracking. By the same process or method bronzes and alloys of all colors and kinds may be made.

M. Gruner has conducted a long series of experiments upon the relative oxidability of cast-iron, steel, and wrought-iron, with a view to the determination of their adaptability for constructions exposed to rusting and the action of sea-water. Experiments made by submitting different kinds of iron to the action of acidulated water can not be depended upon, for the want of evidence that the action of moist air or of sea-water is the same as that of acidulated water. M. Gruner made use of an apparatus in which twenty-eight similar polished plates of different kinds of steel and iron were equally exposed to the same action, of moist air, of sea-water, and of acidulated water. In twenty days of experiments with moist air, the chrome steels were oxidized more, and the tungsten steels less, than the ordinary carbon steels. The cast-irons were oxidized less than the steels and wrought-irons, and among them the white specular iron (spiegel), containing 20 per cent. of manganese, less than the gray irons. The average loss in weight was about half that of the steels. Sea-water was found to attack iron, dissolving it like acidulated water, but under entirely different conditions. In a very short time chloride of iron was found in the bath. Unlike moist air, sea-water attacked cast-iron more strongly than steel, and white specular iron with especial energy. The tempered steels were less attacked than the annealed, the soft steels less than those containing manganese or chromium, and tungsten steel less than ordinary steel having the same percentage of carbon. Acidulated water dissolved gray iron more rapidly than it did steel, but not the white specular iron; the impure gray iron was the most strongly attacked. The results of these experiments show that, while as regards chromium, manganese, and tungsten, the action of acidulated water is almost the same as that of sea-water, in other respects it is entirely different; and it is totally different from the action of moist air.

M. Clemandot has introduced a new process for toughening steel, which consists essentially in heating the metal until it acquires a sufficient ductility, and then subjecting it to high pressure during cooling. He takes steel already made, heats it to a cherry-red, and submits it, by means of a hydraulic press, to pressures of from 1,000 to 3,000 kilogrammes per square centimetre. After having been allowed to cool between the two plates of the press, the steel is withdrawn with all its new qualities perfectly developed, and in a condition not requiring any further treatment. The result of the process is to impart to the steel a fineness of grain, a degree of hardness, and a notable accession of strength to withstand rupture. The alteration is most considerable with highly carbonated steel; and in this respect the metal is made to resemble tempered steel, without being in all points identical with it.

A new crucible tool-steel, possessing remarkable powers of endurance, is made at the Maindy Works, near Cardiff, Wales. It is the invention of Mr. William Jenkins, who keeps his process a secret. A lathe tool made from a cast ingot of the Jenkins steel weighing 42 pounds, was tried upon cast-steel tires in competition with tools from Mushet steel and from the best Sheffield steel. It was beaten by the Mushet steel, but proved greatly superior to the Sheffield steel. Another tool of the Jenkins or Maindy steel, used to make a deep cut across a rough cast-iron disk, eight feet in diameter, showed but little wear, retained a good cutting edge, and was capable of further work without regrinding.

The hardening of cast-steel, of the grades commonly employed for tool purposes, usually contracts it. This quality is frequently employed to reduce to exact size articles that must be hardened for their purpose. An instance is mentioned in which a machinist rehardened a plug gauge six times in order to reduce it to size. At each hardening the steel was subjected to a close measurement test, and the successive contractions could be measured, till the oversized gauge had been reduced to a size that required only the ordinary after-polishing. The property is not universal to steel, but, in some qualities of the metal, expansion rather than contraction is to be expected from repeated heatings, hardenings, and annealings.

The method hitherto employed for treating the steel in a Bessemer converter, when the temperature of the bath becomes too high, has been to add scrap-metal until the heat is sufficiently reduced. By an improvement devised by Capt. William R. Jones, of the Edgar Thomson Steel Works, steam is introduced into the molten metal in connection with the air-blast. In the use of his method, Mr. Jones found that the length of time during which steam should be admitted into the converter depended upon the size of the pipe delivering the steam, as well as upon such other conditions as the nature of the metal, the pressure and volume of the air-blast, etc. The inventor also suggests that it may be expedient to introduce, instead of steam, a spray of water in a finely divided (atomized) condition, together with the air-blast, though the more equable action of steam makes its use preferable in practice. Mr. Jones claims as a marked advantage of his invention that it allows the use of a grade of pig-metal which shall be high enough in silicon to avoid the presence of an objectionable percentage of sulphur, and yet, despite its greater heating capacity, be under the easy control of the operator.

M. D. Chernoff read a paper before the Imperial Technical Society of St. Petersburg, on his own observations, and those of Mr. Beck-Gerhard, on the behavior of steel when subjected to a destructive tensile strain. He had noticed that, with cold-sheared samples of steel, when the limits of elasticity were reached, the scale on the specimens began to separate in a peculiar manner, and the surfaces of the samples were marked with curved lines of more or less regularity. The appearance of the rays on the polished surfaces of the steel reminded him of some experiments made by M. Leger, in which the lines of strains produced in glass subjected to various pressures were made visible through the polarization of the light in the regions strained. In view of these and other similar observations, it occurred to M. Chernoff that, as in glass-bearers, the lines of strains assumed various curved forms, so, in metal, similar actions took place, and became, in part, manifested on the surface so soon as the limits of elasticity were passed. In glass the elastic limit coincides with that of ultimate strength, so that it is impossible to fix the waves of strain; but in metals, the permanent set will begin first where the strains are greatest, and hence the deformation of surface will follow the lines of maximum strain. Why the regions of maximum strain should arrange themselves in the form of curved rays in metals is as difficult of explanation as the corresponding phenomena in glass; but M. Leger suggests that the propagation of strains through elastic substances may be of an undulatory nature comparable to the propagation of sound. M. Rgeshotarsky, repeating and extending the experiments, found that the lines of strain were manifested not only in punching, but in shearing and in flattening with the steam-hammer.

Walrand recommends for distinguishing iron from steel in small pieces, a method by observing the fracture of a test-piece after heating and allowing it to take a blue color. A slight scratch should be made not far from the end of the test-piece. Then heat one end slowly and uniformly to a dark-red color, and cool it in water. During the cooling, while the piece is still warm, it must be rubbed with a file from time to time, until the shining metallic surface laid bare, has assumed a dark yellow, or, better, blue, color, when it is to be cooled quickly and completely. The fractures of the piece broken at the mark serve for comparison. Ordinary wrought-iron broken when cold appears fibrous or crystalline, but treated as above, its fracture is dull, irregular, and of short fiber. Hard and moderately hard steel are fine-grained; after the heating and subsequent treatment, they have a shining, totally or partially smooth fracture. Swedish iron has only traces of fibers, and is hardly to be told from soft steel. After treatment, the fibers become distinct, the smooth appearance is lost, and the iron becomes so much the more distinguishable from soft steel treated in the same manner.

While ordinary iron-rusts—the ferrous and ferric oxides—spread and eat away the substance of the iron, the magnetic oxide—$Fe_3 O_4$—is stable, and when of a certain thickness, arrests the further oxidation of the metal. This property is made use of in the Russianizing of sheet-iron. In Prof. Barff's process for magnetic oxidizing the object is attained by exposing iron to the action of steam with a high temperature in a closed chamber. This process has been improved upon by Mr. George Bower, who substitutes highly heated air for steam; and further by his son, Mr. Anthony S. Bower, to whom it occurred that the work could be facilitated and made more effective and less costly by substituting the internal application of heat, and by a series of oxidizing and deoxidizing operations producing the coating of magnetic oxide simultaneously with the action of heating. A furnace has been devised in which this process is carried on on a large scale. The duration of the treatment depends upon the size, number, and intended use of the articles. In the case of wrought-iron and malleable steel, which are very sensitive to oxidizing influences, this process operates too rapidly, and the Barff method has been found more satisfactory. The two inventors, therefore, combined their methods, and a furnace having the economic features of the Bower furnace was designed to effect the Barff process. By the Bower process, a coating of magnetic oxide can be obtained in from three to eight hours. The rustier the articles are, the more effective and speedy is the process of oxidation.

Prof. M. Keil has produced a composite material of iron and steel, in which the valuable qualities of the two substances are combined, and the combination is made available for a variety of uses. The principle of his process is exemplified in a cast-iron mold divided centrally by a thin sheet of iron, on one side of which sheet fluid iron is poured, and on the other side fluid steel. The dividing plate should be thick enough to prevent the glowing masses on either side from burning through it, and yet so thin that those masses and it shall become thoroughly welded together. The combination has been produced in five shapes; steel by the side of iron; steel between two layers of iron; iron between two layers of steel; a core of steel with a surrounding shell of iron; and a core of iron with a surrounding shell of steel. This steel-iron may be used for a great variety of purposes in which the hard qualities of steel, enabling it to resist wear and tear, or adapting it to cutting purposes, need to be backed by a tougher material competent to resist strains and great vibration.

Gold.—Improvements in the extraction of gold by amalgamation have been applied by Mr. Rowland Jordan, by means of which the percentage of the precious metal that is lost during the process is very largely reduced. Under the ordinary methods of extracting gold with mercury, in case such substances as iron, sulphur, arsenic, lead, tin, zinc, or copper, are associated with the gold, they have the effect through their own chemical action of so "sickening" or subdividing the mercury as to prevent its exerting its full power on the precious metal. Some of the gold, moreover, being coated with complex substances, passes away with the water and sand, instead of being arrested by the mercury. In Mr. Jordan's method the ore is ground up and thoroughly comminuted in a "Jordan fine crusher," while a current of air takes up the pulverized material and conveys it to a settling or collecting chamber, whence it passes by its own gravity to an apparatus which automatically regulates the feeding of the powder into the amalgamator. The amalgamator contains a body of mercury from thirty to fifty inches in depth, and the powdered ore is delivered at the bottom, whence, being lighter than the mercury, it rises through the bulk of this substance to the surface as fast as the controlling mechanism will allow, yielding up the gold in its passage. The refuse sand here encounters another air-current, which conveys it to the waste-pits, or to another machine for the separation of any sickened mercury, which may have been carried away by the amalgamator air-blast. The last machine effectually separates every particle of mercury, and thus obviates the ordinary waste of this valuable metal. Mr. Jordan's process embodies four novel principles or conditions of treatment: First, the ore is reduced and the gold is amalgamated while it is in a perfectly dry condition; second, the ore is reduced entirely by impact and not by abrasion, so that the particles are not rubbed or ground together, and their complete separation and individuality are maintained; third, tne ore, finely divided, clean, and dry, is subjected to the action of mercury under pressure and under the operation of mechanism which continually separates the particles, and is kept beneath the mercury long enough for every particle of the gold-bearing powder to be effectually acted upon by it; fourth, the whole process is automatic.

The gold-ore of the Providence mine in Nevada City, California—a heavily sulphureted quartz—is treated by a chlorination process. The dried sulphurets are roasted in a three-storied furnace of elliptic plan, where the ore is passed in succession from the third or topmost hearth, to the second or middle, and first or lowest hearth, one per cent. of salt being spread evenly over the ore while it is on the last hearth. By this process the following effects are produced in the charge: Any arsenic or antimony present is oxidized and volatilized; the sulphides of iron, copper, zinc, and silver pass through stages of oxidation; and by the addition of salt most of the silver is converted into a chloride, and some chloride of copper is formed, while the rest of the base metals are completely oxidized. The gold is left in a metallic state. The roasted ore, having been partly cooled in a pile under the furnace, is spread out till quite cool, and is then sprinkled with water and thoroughly intermixed, after which it is passed through a sieve. The sieved ore is transferred to the chlorination-tubs, where chlorine gas is passed through it for twelve hours, after which it is left to digest for two or three days, or till the chlorination is found to be complete. In this condition, that of terchloride, the gold is soluble in water, and can be leached out of the mass. The gold is then precipitated in a fine metallic state by a dilute solution of sulphate of iron. When a sufficient amount of it has collected in the precipitating-tanks, it is dipped out, drained and dried, melted, and run into bars. The process for the extraction of the silver, which remains in the ore-pulp as a chloride, is based on the reaction of calcium hyposulphite and silver chloride. This results in the formation of a soluble double hyposulphite of calcium and silver, from the solution of which the silver can be precipitated as a sulphide by soluble polysulphide of iron.

Gold in veins is supposed to have come from the adjoining rocks, but hitherto no case of its occurrence in workable quantities throughout the mass of such rocks seems to have been recorded. Museum specimens of country rock charged with gold are not uncommon, but in such cases the deposition of the precious metal in the rock is clearly connected with the filling of the adjacent vein. According to Prof. Derby, the district of Campanha and São Gonçalo, in southern Minas-Geraes, Brazil, affords an example of extensive mining operations in decomposed gneiss, in which the almost complete absence of veins and of the other usual concomitants of gold is remarkable. The terrain is largely composed of decomposed gneiss, the rock itself being seen only in the streams, and in a few cases in the bottoms of the old mines, and it is in the decomposed material that the workings are chiefly carried on. The quartz-veins are comparatively rare and insignificant. Some of the hills have been worked in ledges or terraces, and successive coatings a few yards thick have been more or less completely stripped off, as one would peel an onion; a mode of working which is of itself sufficient to prove that the gold was found in workable quantities very generally distributed throughout the mass of decomposed gneiss. The same conclusion is presented in an unpublished report to the Brazilian Government, made by the late Prof. Hartt, who visited São Gonçalo in 1875.

Prof. Orville A. Derby has described a specimen of gold on limonite in the National Museum at Rio Janeiro, from the province of Minas-Geraes, Brazil, which has the appearance of having been deposited from solution. The gold-bearing rock is a white-vein quartz resting on a country rock of very quartzose micaceous schist, the exposed side of which had become lined with a crust of black botryoidal limonite less than a millimetre in thickness. The greater portion of the polished surface of this crust is covered with a thin, varnish-like film of an iridiscent, bronzy color. A third crust or film of reddish-brown earthy limonite forms a V-shaped streak on one side of the specimen. On various parts of the stone, and all along the V-shaped streak, are minute detached films of gold which adapt themselves perfectly to all the irregularities of the limonite, and are shown under the microscope to be uniform or not composed of distinct grains joined together, and to present a surface like frosted metal-work. Films having a similar adaptation to the character of the surface were obtained by allowing a drop of mercurial ointment to dry on the specimen. We have in this specimen, therefore, gold resting on the surface of a secondary mineral (limonite), and in such conditions that it may be compared to films of limonite deposited from an aqueous solution, or of mercury from suspension in fatty matter.

Gold has been found on Clancey creek, Jefferson county, Missouri, crystallized in the form of a solid octahedral nucleus, to which is added a long divergent brush-like or prismatic development of the metal on one side or angle, so as to give the whole, according to the description by Mr. W. P. Blake, the appearance of the drawings usually made to represent comets. The total length of these crystals is not more than an eighth of an inch. The divergent prisms are very brittle, appearing to cleave in planes at right angles to their length. They taper gradually and uniformly to a sharp point and are sometimes composite, or for a part of their length formed of two or more prisms joined side to side.

Mr. Blake has also from Sonora, Tuolumne county, California, some very small, brilliant crystals of gold, which are seen under the microscope to be hexagonal prisms with smooth and lustrous planes terminated at one or both ends with a pyramid. They resemble the prismatic gold crystals described by Prof. A. H. Chester as obtained artificially by digesting gold amalgam in nitric acid.

Dr. James C. Booth, of the United States Mint, has successfully employed for the toughening of gold and silver the process of heating them in the melting-crucible till the impurities causing them to be brittle are removed by oxidation, volatilization, or fluxion. The whole amount of gold and silver was recovered, with hardly an appreciable loss. Dr. Booth remarks on the minute proportion of foreign matter, which is capable of imparting brittleness, it being less than one part in 75,000 of standard gold—possibly only $\frac{1}{100,000}$ of the whole quantity.

Silver.—Silver exists in masses where it is mined as an ore and as the chief object of exploitation at Silver islet, Lake Superior, and Batopilas in southwestern Chihuahua, on this continent, and in the district of Kongsberg in Norway. The Kongsberg mines have been worked since 1624; those at Silver islet, only since 1868. A description of the mines at Batopilas, and the methods of working them, has been given by Mr. T. H. Leggett, in the "School of Mines Quarterly," from which we derive the following facts:

The gangue consists of calcite and vein rock, the latter being a more or less metamorphosed condition of the wall-rock, which is usually a greenstone. In some of the mines the silver is found very pure, while in others it is associated with sulphurets of silver and base metals. It is itself discolored and apparently contains appreciable amounts of arsenic, which give forth the characteristic odor when masses too large to go into the batteries are being broken up under the sledge. The deepest mine is not more than 800 or 900 feet from the surface. The entire district is opened up exclusively by tunnels, which are so directed as to avoid, by going beneath or away from them, the old Mexican workings at the surface. The veins average from four to six feet in thickness. The ores produced are classified as follows: First class, in which native silver is plainly visible often in massive form, associated at times with rich silver sulphurets, and assaying from 500 to 10,000 ounces of silver per ton. Despuntes is a grade that arises from the hand-cleaning of the first-class ore, and is intermediate between that and the second class.

The second-class ore assays from 40 to 300 ounces per ton, and may or may not show native silver in small specks or flakes.

The third-class ore is a stamp-rock, consisting of galena and zinc blende, distributed through spar and vein rock, and minute particles of silver visible only on the vanner belt. It assays between 12 and 25 ounces per ton. "Tierras," or soft-vein filling, or gouge, in the regions adjacent to a bonanza, also often form a third-class ore.

A lot of 8,694¼ pounds of first-class ore from the Roncesvalles mine, taking 6¼ hours in running through the batteries, produced 61¼ pounds of "cabazuelas" or massive silver, weighing from an ounce to several pounds; 873 pounds of sieved-battery cleanings, assaying 19,274 ounces of silver to the ton; and 3,260 pounds of slimes, assaying 659 ounces of silver per ton.

In running through the batteries, the salt was charged with the ore; steam was turned on at various times as the pulp thickened and cooled; and the mercury was added at intervals, as the spoon-tests showed the necessity for it. All the features of the amalgamation of first-class ores are made to vary with the richness of the ores, but with the second-class ores the treatment is more methodical. Despuntes and the richer second-class ores are generally charged in 1,100-pound lots, with 80 pounds of mercury, 2¼ per cent. of salt, and 3 per cent. of sulphate of copper. The poorer second-class ores, assaying 80 ounces per ton and under, are charged with 40 pounds of mercury and usually the same amount of salt and sulphate of copper, and the runnings are kept up for from a third to a half less time than in the case of the first-class ores. When squeezed and "retorted," the amalgam from first-class ores usually yields a third part of pure silver. The tailings of the ores are often quite rich. Some tailings from first-class Roncesvalles ore ran 79 ounces per ton. They are reduced by a chloridizing roasting.

A very rich silver-producing district is situated in what are designated the Barrier Ranges, in New South Wales, near where that colony joins South Australia. The existence of the silver-bearing ores was first discovered in 1876, but they did not attract attention till about 1882. The influx of miners has aided in the erection of a township, which is now known as "Silverton." The mine at Silverton embraces eleven claims, in which the ore consists of sulphides of lead, or argentiferous galena. Fifteen shafts have been sunk, varying in depth from 80 feet to 75 and 180 feet. The larger Lakes Camp group of mines are situated about twenty-eight miles from Silverton, and consist of very rich sulphides of silver. Ores from the Silverton mines have yielded a clear profit of £12 or $60 per ton, while two tons sent from the Lakes Camp mines to England for assay were sold for £600, or $3,000.

Iridium.—The discovery by Mr. John Holland, of Cincinnati, of methods suitable for making the metal iridium promises to result in the development of a new industry and in the addition of a new and valuable element to mechanical resources. Iridium is chiefly obtained from Russia and California, though it is also found in other parts of the world. It is nearly always associated with platinum or gold, in small grains or fine powder, the largest pieces being of about the size of a grain of rice, generally alloyed with platinum as platin-iridium, or with osmium as osmiridium, or iridosmine. Previously to Mr. Holland's experiments, it had been possible to fuse it only at extremely high temperatures in minute quantities that gave globules of very small size. The only use for which it had been found available was that of pointing gold pens, for which the natural pieces were selected and fitted and then ground to a proper shape. Mr. Holland, seeking to obtain larger pieces of iridium than were found in nature, discovered that by adding phosphorus to it, it became perfectly fusible, when it could be poured out and cast into almost any desired shape. The resultant product was found to be about as hard as the natural grains, and to have all the properties of the metal itself, but to contain from 7·52 per cent. to 7·74 per cent. of phosphorus. At this stage of the research, Mr. W. L. Dudley, of Cincinnati, began experiments to find means of putting the product to a more extended use in the arts. He discovered that the phosphorus could be completely removed, by heating the melted metal in a bed of lime. His further investigations related to the construction of appliances for grinding, drilling, and sawing the metal, all of which operations are performed with the aid of corundum or diamond-dust. By means of these improved processes, iridium has been made applicable to use in draw-plates for drawing gold and silver wire; knives for fine scales and balances; hypodermic needles; the points of styluses for manifold writing, and for surveyors' and engineers' instruments, and all purposes for which hardness, durability, and non-corrosibility are required; for the negative electrodes of electric lights; and the electrical contact-points of telegraphic apparatus. The later investigations, not yet completed, are upon methods of plating with iridium.

Nickel.—A valuable deposit of nickel-ore has been discovered in Cottonwood Campus, Churchill county, Nev. According to the description by Mr. Charles Bell, one of the discoverers, the ledge in which it occurs is perfectly incased, runs 6,000 feet northeast and southwest, and is thirty feet wide between the walls, while the mineral lies in veins, of which there are thirteen, each from ten to thirty-five inches wide. Specimens of the ore from the different levels, amounting in all to thirty pounds in weight, have been analyzed by Prof. Spencer B. Newberry, and are pronounced by him the finest masses of nickel-ore he has ever seen. The sample from the greatest depth (80 feet) consists of nearly pure niccolite.

Aluminum.—Mr. Wm. Frishmuth, of Philadelphia, claims to have discovered a practicable process for the commercial manufacture of aluminum. Instead of using metallic sodium, as in the processes hitherto employed for the reduction of the chloride of aluminum, he employs a vapor generated by heating a mixture of some sodium compound with carbon or some other reducing agent. The cheapness of this method, as compared with those hitherto employed, is illustrated by the statement that, while by what is known as the De Ville method, to produce 20 pounds of aluminum, 50 pounds of metallic sodium are required, at a cost of not less than $150, in Mr. Frishmuth's process the result is secured by the use of 115 pounds of carbonate of sodium, costing one cent a pound. Both processes employ the double chloride of aluminum and sodium; but Mr. Frishmuth has taken out a patent for the use of the double fluoride of the same metals. He has also introduced improvements in making the double chloride, by which its cost is greatly reduced, and has devised methods for saving in the wear and tear of the apparatus. The possible applications of aluminum are innumerable; and the supply in our clays and earths being inexhaustible, if the commercial manufacture is made a fact, a new metal will be furnished to the uses of man equal in economical value to any that is now known.

M. Bourbourze has found a means of soldering aluminum satisfactorily. He uses alloys of tin and zinc, or of tin, bismuth, and aluminum, but one of tin and aluminum yields the best results. The proportions of the alloy vary with the kind of work it is intended for.

Prof. Jamieson, of Glasgow, has found that, with nearly pure aluminum, having a density of 2·786, the electric resistance is 1·96 times that of pure copper wire of the same length and diameter. For wires of equal length and weight the resistance of aluminum is a little less than that of pure copper. The addition of a small quantity of aluminum to copper largely increases both the mechanical and the electrical resistance. The first experiments furnished specimens in which the electrical resistance was twenty-five times as great as that of pure copper.

Copper.—Prof. T. Egleston, of New York, has observed the presence of tellurium in samples of black oxide of copper and of pig-copper from Colorado, which had the effect of "poisoning" the metal and rendering it unfit for refining. His analyses showed no antimony or arsenic, or only a very minute quantity of the latter metal in one specimen, but revealed the presence of from 0·083 to 0·12 per cent. of tellurium. In the laboratory, when the metal was "dry-roasted," very dense white fumes were given off. When refined and cast into a cake, the metal had the ordinary appearance of cake-copper. It was then reheated for rolling in the ordinary way, without showing any signs of impurity. At the first pass in the rolls, however, very fine cracks showed themselves, which opened in succeeding rolls. At a thickness of about 0·03 of a metre, the cracks on each side nearly penetrated the cake, and at about 0·008 of a metre it began to fall to pieces. When cold, the metal is tough and malleable. Although the cakes in the molds showed no coating, when they were heated repeatedly, and allowed to cool in the air, they became covered with a white powder, which proved to be oxide of tellurium. This is believed to be the first time the presence of tellurium has been detected in commercial copper. It is worthy of remark how small a quantity of this impurity renders the copper red-short, and consequently worthless for rolling.

Strontium.—The recent introduction of strontium into the manufacture of *tuyères* has given considerable importance to the minerals of that earth, which are comparatively scarce. The ore, celestine, a sulphate, is worked at Favara, near Girgenti, in Sicily, whence it is shipped to Hamburg and other ports. The rate at which the working is being developed may be estimated from the fact that while only 1,000 tons were exported in 1880, 4,000 tons were sent away in 1881. Works for the conversion of the Sicilian ore into caustic strontium, or the carbonate (strontianite), have been built at Rosslau, in Alsatia.

Alloys.—The investigation for the location of the strongest of the bronzes—that is, for ascertaining the precise composition of the strongest metal—has been conducted in five successive stages: by Wertheim and Riche in the elasticity and tenacity of the alloys; Thurston on the copper-tin alloys; Thurston on the copper-tin-zinc alloys; Coster on the strongest bronze; and, finally, up to the present time, by W. Ernest H. Jobbins. The result in each of these investigations has been to confirm the conclusions reached in the previous ones, and define them more precisely. Thurston determined of the copper-tin alloys that, in those containing less than 20 per cent. of tin, the strength and density were in a certain degree dependent upon one another; that the maximum density was nearly approached in an alloy 62·31 copper, 37·35 tin; that the maximum of resistance to torsional and tensional stress is reached in the alloy containing 82·70 copper, 17·34 tin; that ductility follows a regular law depending on the composition; that the resilience, or amount of work done in breaking any specimen bears a close relation to the ductility, the maximum torsional resilience lying in a bar composed of 96·06 copper, 3·76 tin, and a second maximum resting in the alloy 0·32 copper, 99·46 tin, while the resilience diminished from both points to 35·85 copper, 73·80 tin; and that the highest elasticity was found in alloys containing between 25 and 35 per cent. of tin.

Continuing his reseaches on the triple alloys, Prof. Thurston constructed a relief-map on a triangular base, in which the angles were designed to represent the pure metals, or, respectively, copper = 100, tin = 100, zinc = 100 per cent., while the various points in the area of the triangle represented different proportions of the metals, as determined by graduated scales along the sides of the figure. When the numbers representing the several properties to be investigated, having been obtained by experiment in the autographic testing-machine, were entered in the triangular map, lines of equal strength, of equal ductility, or of equal resistance could be drawn, as, in topographical work, lines of equal altitude are drawn, and the map would become thus a useful representative of the valuable qualities of all possible alloys. At each point in this map representing a certain alloy, vertical wires were fixed of a length proportioned to the strength of the alloy, so as to produce a forest of wires, the tops of which were at elevations varying with the different qualities of the alloys to be studied. The space was then filled with clay or plaster, so molded as to leave the tops of all the wires just visible as shining points of the surface, which would now have a topography characteristic of the alloys examined with its undulations representing the variations of quality, with changing proportions of the three constituents. On the model thus formed, the position of the strongest alloy was indicated by a distinct elevation or mountain, not far from the point, copper = 55, zinc = 43, tin = 2, at which the tenacity was about 65,000 pounds per square inch. This gives a close-grained alloy, of rich color and fine surface, and capable of taking a good polish. It had immense strength, and seemed unusually well adapted for general use as a working quality of bronze. The alloy having the highest qualities of toughness as well as strength contained less tin than the above composition, viz.: Copper = 55, tin = 0·5, zinc = 44·5. It had a tenacity of 68,900 pounds per square inch of original section, and 92,136 pounds on fractured area. This alloy and the "Tobin alloy," copper = 58·22, tin = 2·30, zinc = 39·48, are good working metals; the latter is capable of great improvement by skillful working either hot or cold, and of obtaining a tenacity of more than 100,000 pounds per square inch. The addition of tin and of zinc to cast copper increases the tenacity up to a certain limit, and the influence of tin is nearly twice as great; while the limit of useful effect is not reached with zinc until the amount added becomes very much greater than with the copper-tin alloys. Brasses can be obtained which are much stronger than any bronzes, and the ductility of the working compositions of the former class generally greatly exceeds that of the latter. So sensitive is zinc to the presence of tin that M. Bischof states that he can detect the addition of one part in tin in 10,000,000 of pure zinc. Prof. Thurston having laid down the boundaries within which the useful alloys of copper-tin-zinc are to be found, Mr. Maurice I. Coster, under his direction and supervision, investigated the inclosed field, beginning his work with two series in order to fix more accurately its precise limitations. When these were approximately defined, three other series were proposed, in which the alloys were made to differ by smaller percentages. Thus the influences of slight variations in the composition of the bronzes were determined. Mr. W. Ernest H. Jobbins continued the investigations in the light of the results obtained by Prof. Thurston and Mr. Coster, choosing as his field a triangular area of Prof. Thurston's map surrounding the mountain of 65,000 pounds tenacity, which embraced all that portion of the field in which the most tenacious alloys had hitherto been discovered. The boundaries of this field were: copper, maximum = 60, minimum = 50; zinc, 48 and 38; tin, 5 and 0; limits which included the "Tobin alloy" and Prof. Thurston's alloy of 68,900 pounds tenacity. Of twenty-three alloys experimented upon, No. 22, the composition of which is copper 57, zinc 42, tin 1, was determined as the "strongest of the bronzes"; No. 7, copper 55, zinc 44, tin 1, as second in quality; and No. 5, copper 56, zinc 42, tin 2, as the best for practical purposes. The last is described as a very fine alloy, possessing great ductility, giving a good, smooth, square fracture, and having the grain very close and compact.

Cobalt-bronze is a new alloy introduced by Messrs. Henry Wiggin and Son, Birmingham, England, to furnish a compound having the desirable qualities that have been found to exist in the metal cobalt. The inventors had determined that pure metallic cobalt could be rolled into sheets and wrought into articles of utility, but found that its high price would prevent its coming into practical use. In cobalt-bronze they claim to have preserved the sterling qualities of the metal at a marketable price. It is manufactured in several qualities, the higher grades of which are recommended for their close, steel-like surfaces, their susceptibility of a high polish, their suitability for casting purposes, and their hardness, toughness, and great tensile strength.

A white bronze is coming into use for monuments which has been found to stand exposure to the weather for a very long time. The material is non-corrosive and unchangeable, and is therefore better adapted to certain purposes than some of the more costly metallic compounds. The monuments are cast from refined zinc, and are given their sparkling appearance by the sand-blast. The sand, being blown against the work under a high pressure of steam, cuts the surface, but does not adhere to it. A film of oxide which forms on this bronze, although it is so thin as to be unmeasurable, is indestructible by the elements, being insoluble in water and impenetrable by air.

Mr. John S. Brodie, in a paper read before the Liverpool Engineering Society on the strength of bronze alloys, spoke of silicious bronze as a substance, wires made from which have all the tensile strength of high-class wrought-iron, with more than four times the electrical conductivity of iron. With this metal, then, overhead wires might be made of one fourth the weight of the wires now in use.

The name of forgeable brass has been given to an alloy composed of 60 per cent. of copper, 38·50 per cent. of zinc, and 1½ per cent. of iron. The compound has the property of being readily worked when warm. It can then be employed for constructing various pieces of lock-work which are commonly made of iron, but which, when made of this alloy, would be much less subject to rust.

Apparatus.—G. A. Forsberg describes a modification of the Swedish "Lancashire" hearth-finery, which has been introduced at the Skutskär Iron Works. It is of the ordinary Swedish rectangular form, but has a third tuyère in the back wall. The side-walls are formed of hollow iron castings, which are cooled by allowing the blast to pass through them, whereby it becomes heated before arriving at the tuyères.

The hearth is covered by an arched roof of brickwork, carrying a hopper closed by a slide, in which the charcoal is charged and dropped into the fire as required, instead of being shoveled as in the old plan through the working door in front. The waste flame, on its way to the chimney, passes over a bed in which the pig-iron for the following charge is brought up to a strong heat before being introduced into the melting-hearth. On a trial of four weeks, one of these hearths produced an average of 366 cwt. of blooms per week, with a consumption of 4⅛ bushels of charcoal per cwt., against 265 cwt. of blooms per week, with a consumption of 5¾ bushels of charcoal per cwt. by the ordinary hearth.

Mr. Forsberg suggests a method for further increasing the production of his furnaces by doing away with the melting of the pig-iron in the refining-hearth. For this purpose the heating-bed for the metal in the flue is to be converted into a melting-bed, which is kept warm by the waste flame during the actual firing period, and receives the heat necessary for melting from a gas-producer, placed at right angles to the working axis of the hearth.

In a puddling-furnace invented by Mr. R. H. Oates, of Port Clinton, Pa., the puddling-chamber is supported on segmental shoes mounted on rollers, having their bearings on a saddle, and arranged in a curvilinear direction. The metal is forced from end to end, and deflected inwardly at the ends by means of diagonal corner-blocks. In this way it is uniformly directed backward and forward between the corner-blocks. At each opening of the chamber is a vertical dividing bridge. As the bridges move with the chamber, the flames from the furnace are deflected by the varying position of the bridges, and their directions constantly change, so that the action of the fire on the metal is uniform.

METAL MARKET IN 1884. With the exception of lead, metals closed the year 1884 at prices lower than those ruling at its beginning. The general tendency of values during the year was slowly downward, in common with nearly all other raw material. This gradual depreciation, which has been noticed all over the world, is due less to a falling off in consumption than to excessive production. Consumption has been all that could be expected, considering the dull times, both in the United States and Europe; it has even exceeded expectations; but the output has been altogether too heavy. The larger mines and smelting-works, in order to be able to pay dividends in spite of lower prices, have, many of them with increased means of production, and better methods of treatment, been steadily making a large output, while being content with a very moderate profit. While small and financially not very strong mines and works have been struggling through the year as well as they could, instead of stopping work because unprofitable, the large and rich concerns have been producing more than ever, swelling the aggregate amount turned out to an astonishing total. Overproduction having been going on for years, although less strikingly than in 1884, there has been, during the past decade, a decline in values of about 50 per cent. in most metals. The rapidity of communications has co-operated in bringing about the lower ruling of values, as there is less necessity for accumulating stocks in port to await the demand. If there be requirements anywhere, greater or more urgent than in the normal course of business, the telegraph is used, and rapid steamers or shortened routes bring the supply in as many weeks as it formerly required months. This possibility of rapid supplies at any season has, on the other hand, discouraged speculative holding for a rise, and singularly upset calculations based on current statistics. In a word, the stock in port has lost much of its significance in determining current value. This table shows the course of prices at New York, in cents per pound, gold value:

METALS.	July 1, 1873.	Dec. 29, 1881.	Dec. 14, 1882.	Dec. 19, 1883.	Dec. 23, 1884.
Lake copper	24½	21	18	15	11
Straits tin	31½	24½	21	18⅝	16¼
Domestic lead	6½	5¼	4⅝	3¾	3⅝
Spelter	7¼	6	4⅜	4⅜	4¼
Antimony	13½	14½	12¼	11¼	10¼
Coke tin, per box	$9½	$5¼	$5¼	$5	$4¼

Copper.—Lake Superior copper opened at New York at 15 cents, and Chili bars in London at £58, the lowest price during a decade having been £56 15*s.* in 1883; £62 17*s.* 6*d.* in 1882; £57 in 1881; £55 in 1880; £54 in 1879; £55 in 1878; £64 in 1877; £71 10*s.* in 1876; £79 10*s.* in 1875; and £74 10*s.* in 1874. Charters on the west coast were: 40,800 tons in 1883; 41,900 in 1882; 40,200 in 1881; 41,500 in 1880; 50,600 in 1879; 48,000 in 1878; and 44,000 in 1877. The world's copper production in five years had been:

1879.	1880.	1881.	1882.	1883.
Tons. 149,156	Tons. 151,057	Tons. 159,711	Tons. 174,596	Tons. 193,454

Although it was no secret that the American output was unusually large, and though business on both sides of the Atlantic was very dull, prices till December gave way but gradually, as the following table shows:

LOWEST AND HIGHEST PRICE OF LAKE SUPERIOR COPPER AT NEW YORK, IN CENTS PER POUND.

MONTHS.	1881.	1883.	1884.
January	19 *a* 19½	17¾ *a* 18	14¾ *a* 15
February	19¼ *a* 19½	17¼ *a* 18	14⅝ *a* 14¾
March	19 *a* 19½	16 *a* 17¼	14⅝ *a* 14¾
April	18¾ *a* 19	15¾ *a* 16	14½ *a* 14¾
May	18¾ *a* 19	15½ *a* 16	14 *a* 14½
June	16⅞ *a* 18¼	15 *a* 15⅝	14 *a* 14¼
July	16 *a* 16½	15¼ *a* 15⅝	13¾ *a* 14½
August	16½ *a* 17	15 *a* 15¼	13¾ *a* 14
September	17 *a* 18⅛	15¼ *a* 15½	13¼ *a* 13½
October	18 *a* 18¼	15 *a* 15½	13 *a* 13¼
November	18¾ *a* 19½	14¾ *a* 15	12¾ *a* 13
December	19½ *a* 21	14½ *a* 15	11 *a* 12½

In December a complete break-down occurred in London, where Chili bars declined to £47 5*s*., and in New York, where Lake Superior copper for a moment dropped to 11 cents, when it transpired that the syndicate of lake companies sold to manufacturers 12,000,000 pounds, delivery spread over five months, on the basis of the average price of Chili bars in London, the average of the quotations of the 10th to the 25th of the preceding month, to determine the price that consumers were to pay. The price, which was not to be less than 10¼ cents whenever Chili bars had averaged in London £48 or under, was to advance one tenth of a cent for every 10*s*. increased average, until £53 or over was reached, when the maximum price was to be 11¼ cents. Subsequent experience in 1885 showed that, as Chili bar remained depressed in London in January and February, declining to £47 2*s*. 6*d*., the price that manufacturers paid to the lake companies was only $10.80 the hundred pounds in January and February, and $10.40 in March, while on the spot the price remained steady, in New York in January and February, 1885, 11¼ to 11½ cents. Statistics had shown that in 1880 the output of copper in the United States was 27,000 tons of 2,000 pounds, of which the lake companies contributed 22,204 tons, or 82 per cent. In 1881 the figures were respectively 32,000 and 24,363 net tons, or 76 per cent. In 1882 they stood 40,912 and 25,439, or 62 per cent., and 58,000 and 30,000 tons, or 52 per cent., in 1883. These figures, therefore, proved that, outside of the lake-region, copper production had made rapid strides, and, when all particulars relating to production in 1884 had been gathered, the following general result was revealed:

COPPER PRODUCTION OF THE UNITED STATES.

LOCALITIES.	1883.	1884.
	Pounds.	Pounds.
Lake Superior	59,700,000	68,500,000
Arizona	24,000,000	26,700,000
Montana	24,000,000	44,500,000
New Mexico	800,000	800,000
California	1,600,000	1,600,000
Colorado	1,150,000	2,000,000
Utah	840,000	175,000
Wyoming	950,000	......
Nevada	180,000	100,000
Idaho	......	40,000
Missouri	290,000	280,000
Maine and New Hampshire	210,000	200,000
Vermont	400,000	650,000
Southern and Middle States	460,000	800,000
Desilverized	780,000	950,000
Total	114,860,000	146,245,000
Copper from imported pyrites	1,625,000	2,850,000

Tin.—At the beginning of the year 1884, the metal market opened in New York with Straits tin at 19 cents a pound, which declined in the course of January to 18¼ cents, and at the end of the month was at 18⅝ cents. The visible supply in New York and Boston on January 1 was 3,000 tons, and the year terminated with this reduced to 2,400 tons. The course of prices was as follows:

PRICE OF STRAITS TIN AT NEW YORK.

Jan., 1883	21c. *a* 21½c.	Jan., 1884	18½c. *a* 18½c.
Feb., 1883	20½c. *a* 20½c.	Feb., 1884	18c. *a* 18½c.
Mar., 1883	20½c. *a* 21½c.	Mar., 1884	18c. *a* 18½c.
April, 1883	21½c. *a* 21½c.	April, 1884	18½c. *a* 18½c.
May, 1883	21½c. *a* 21½c.	May, 1884	18½c. *a* 18½c.
June, 1883	21½c. *a* 21½c.	June, 1884	18½c. *a* 18½c.
July, 1883	21½c. *a* 21½c.	July, 1884	18½c. *a* 18½c.
Aug., 1883	21c. *a* 21½c.	Aug., 1884	18½c. *a* 18½c.
Sept., 1883	21c. *a* 21½c.	Sept., 1884	16c. *a* 18½c.
Oct., 1883	20½c. *a* 21c.	Oct., 1884	16½c. *a* 17½c.
Nov., 1883	18½c. *a* 21c.	Nov., 1884	16½c. *a* 16½c.
Dec., 1883	18½c. *a* 18½c.	Dec., 1884	16½c. *a* 16½c.

As the New York market was mainly ruled by the London quotations by cable, the course of prices is best understood by showing their course in that market. The year opened in London with sanguine expectations at £86 for Straits tin, but prices gradually declined up to March to £82 10*s*. cash, and £83 2*s*. 6*d*. three months. In April a decided improvement occurred, to £86 5*s*. and £87 cash and forward respectively; receding, however, in June and July to £81 10*s*. cash. In August a slight reaction of 30*s*. a ton took place. In September a serious decline ensued, to £72 10*s*. cash and forward. A determined effort to stay the fall was made by holders in October, and in a few days the market improved to £77 7*s*. 6*d*. cash, and £77 10*s*. three months, declining in November to £74 and £74 10*s*., and to the middle of December to £72 12*s*. 6*d*. and £73 2*s*. 6*d*. cash and forward respectively, closing better on December 31 at £74 15*s*. cash, and £75 three months.

The decline in September was due, on the one hand, to the discomfiture of the chief speculator for a rise in London, who had lost heavily on Chili bars (copper), and was compelled to realize on his tin holdings; and, on the other hand, to the threatening aspect of relations between France and China. As the latter is a large consumer of tin, buying at Penang and Singapore, and it looked as though Chinese ports would be blockaded by the French fleet, it was feared that the tin not taken for China would be diverted to European and American markets. These apprehensions subsided when it was found that the Chinese resumed purchases as steadily as before, notwithstanding the war. The consumption of tin in Europe and the United States in 1884 was 35,400 tons, against 34,260 the year preceding, and 32,000 tons in 1882. It was most satisfactory to find that consumption had been so well maintained, showing an increase of 3,400 tons in three years. Meanwhile the visible supply in England and Holland had diminished. It was as follows:

QUANTITY. PRICE.	Dec. 31, 1884.	Dec. 31, 1883.	Dec. 31, 1882.
Tons	11,685	12,972	12,159
Price of Straits tin	£74 10*s*.	£86	£96

The opening price for coke tin plates was $4.85–$5.05 a box in the New York market, and the year closed at $4.45–$4.55. At Liverpool ordinary cokes began the year at 15*s*.

a box, improving up to June to 16*s.*, but closed the year at 14*s.* The demand being brisk, many idle mills restarted in Wales, during the last four months of the year, and some old works changed hands, working in December with such renewed vigor that there were signs again of overproduction.

SHIPMENTS TO THE UNITED STATES.

	Boxes.		Boxes.
1873	1,511,632	1879	2,755,421
1874	1,535,994	1880	2,959,380
1875	1,673,485	1881	3,184,402
1876	1,609,515	1882	3,505,249
1877	1,943,444	1883	3,755,707
1878	1,931,128	1884	3,572,782

From the foregoing statistics it will be seen that exportation from Wales to the United States nearly doubled between 1878 and 1883; yet it can not be said that there has been, at any time during the interval, a glut of tin plates either in New York or in the interior, and although the shipments in 1884 were again liberal, the American market entered the year 1885 with a very moderate stock. Ample fruit-crops and an extensive canning of provisions, fish, etc., especially on the Pacific coast, were mainly instrumental in the consumption of those enormous shipments. While in 1884, Wales shipped to all quarters 5,121,001 boxes, the United States took of this amount 3,572,782, or 70 per cent. The extraordinary cheapness has of course stimulated the use of tin plates for many purposes, particularly in building.

Lead.—Although lead fluctuated at times during the year, the general course of prices evinced great steadiness, as the following table exhibits, which gives the price of common domestic lead at New York, in cents per pound:

MONTHS.	1881.	1882.	1883.	1884.
January	5	5⅛	4⅝ *a* 4¾	3⅝ *a* 4⅛
February	4⅞	5⅛	4½ *a* 4⅝	4 *a* 4⅛
March	4⅞	5	4⅛ *a* 4⅝	4 *a* 4⅛
April	4⅞	5	4⅛ *a* 4⅝	3¾ *a* 4⅛
May	4⅞	4⅞	4½ *a* 4¼	3⅛ *a* 3⅞
June	4⅞	4⅞	4⅜ *a* 4¼	3⅝ *a* 3¾
July	5	5	4½ *a* 4⅝	3⅛ *a* 3⅝
August	5	5	4½ *a* 4⅝	3⅛ *a* 3⅝
September	5¼	5⅛	4½ *a* 4⅝	3⅝ *a* 3¾
October	5⅜	5	4⅛ *a* 4¼	3⅝ *a* 3¾
November	5	4⅞	3¾ *a* 4⅛	3½ *a* 3⅝
December	5⅛	4⅞	3⅝ *a* 3¾	3⅛ *a* 3⅝

The production of lead decreased in 1884, as a comparison with that of 1883 shows:

KIND. QUANTITY.	1883.	1884.
Desilverized, net tons	122,157	119,965
Non-argentiferous, net tons	21,800	19,932
Total	143,957	139,897

This shows a decline in the output of about 4,000 net tons.

Up to 1884, lead production has been in the ascendant everywhere except in England. The export of pig-lead from Spain in 1883 was 126,888 tons, against 115,368 in 1882, and 110,875 in 1881. The aggregate European output in 1883 had been 336,500 tons of pig-lead, our own 130,000 and in other countries 3,500—together, 470,000 tons of 2,240 pounds, against 440,000 in 1881, an increase in two years of about 7 per cent. During the first eleven months of 1884, Spain shipped only 108,227 tons, against 116,049 in 1883, and 106,783 in 1882, thus also showing a falling off. The two chief producing countries, the United States and Spain, thus both contributed less toward the world's supply than in former years. But this did not prevent the price in London of common English pig from declining during the year from £12 2*s.* 6*d.* on January 1, to £11 2*s.* 6*d.* on December 31, due to dullness in the metal trade in Europe.

Spelter.—The course of spelter prices in 1884 was, on the whole, very unsatisfactory to the majority of producers. There was much rivalry between the leading producers and the rest, and, working under specially favorable circumstances, the former had for months kept the price low, hoping thereby to force the competing smelters to suspend work. As these manœuvres were not attended with quite the success that had been expected, but, on the contrary, several other works were able to form a combination enhancing the price, the market was kept in an unsettled state most of the time. The lowest and highest price of common spelter, in cents per pound, were:

MONTHS.	1881.	1882.	1883.	1884.
January	5½ *a* 5¾	5⅝ *a* 6	4⅝ *a* 4½	4¼ *a* 4⅜
February	5¼ *a* 5½	5⅝ *a* 6	4⅜ *a* 4½	4⅜ *a* 4⅝
March	5 *a* 5½	5⅜ *a* 5⅝	4⅝ *a* 4½	4⅛ *a* 4⅜
April	4⅞ *a* 5¼	5¼ *a* 5⅜	4⅜ *a* 4½	4⅛ *a* 4⅜
May	4⅞ *a* 5¼	5⅛ *a* 5¼	4⅜ *a* 4½	4¼ *a* 4⅜
June	4⅞ *a* 5⅛	5⅛ *a* 5⅜	4⅜ *a* 4⅝	4⅛ *a* 4⅜
July	4⅞ *a* 5⅛	5½ *a* 5⅝	4⅜ *a* 4⅝	4¼ *a* 4⅜
August	5 *a* 5⅜	5½ *a* 5⅝	4⅜ *a* 4⅝	4⅜ *a* 4½
September	5 *a* 5½	5½ *a* 5⅝	4½ *a* 4⅝	4⅛ *a* 4⅜
October	5⅜ *a* 5½	5½ *a* 5⅝	4⅜ *a* 4⅝	4⅛ *a* 4¼
November	5½ *a* 5⅝	4⅞ *a* 5½	4⅜ *a* 4⅝	4⅛ *a* 4¼
December	5⅝ *a* 6	4½ *a* 4⅞	4⅜ *a* 4⅝	4⅛ *a* 4¼

The production of spelter in the United States, in net tons, has been:

1873	7,343	1882	33,765
1875	15,833	1883	36,872
1880	23,239	1884	38,544

The production in net tons was distributed as follows:

LOCALITIES.	1881.	1882.	1883.	1884.
Illinois	16,250	18,201	16,792	17,594
Kansas	5,000	7,366	9,010	7,859
Missouri	2,750	2,500	5,730	5,230
Eastern States	....	5,695	5,340	7,861
Total	24,000	33,765	36,872	38,544

Concerning the ore-production in southwest Missouri and southwestern Kansas, the following facts have been collected: the output of the region was the heaviest in its history, aggregating 74,250 tons, the bulk of which was mined in Jasper and Newton counties, Missouri, and in Cherokee county, Kansas. Of this quantity, 67,250 tons were blende, and 7,000 tons silicate. The zinc-works of

Carondelet, Rich Hill, and Toplin took 14,550 tons; La Salle, Peru, and Collinsville, 36,500 tons; and Pittsburg and Weir City, 23,200 tons. Another authority places the output of the Cherokee county (Kansas) district at 32,987 net tons of ore, placing the average price at $15 a ton for the whole year. It is said concerning the mines of southwestern Missouri and of southeastern Kansas that the outlook for an increased production during 1885 is good. Promising discoveries of deposits of zinc-ore have been made in central Missouri, along the line of the Kansas City, Springfield, and Memphis Railroad, and in the northern counties of Arkansas bordering on the Missouri line. In Europe the general course of spelter prices has also been highly unsatisfactory. In London the year opened with the price at £15 5*s.* ordinary at shipping ports; closed at £14 2*s.* 6*d.* Calamine exportation from Spain during the first eleven months of 1884 was 27,277 tons, against 28,439 in 1883, and 24,597 in 1882.

From all this it will be seen that the chief interest in the American and European metal markets in 1884 centered on copper, whose further developments are a problem attracting general attention.

METHODISTS. I. Methodist Episcopal Church.—The following is a summary of the statistics of the Methodist Episcopal Church, as they are given in the "Minutes of the Annual Conference" for 1884. Number of traveling preachers, 11,624; of preachers on trial, 1,299; of local preachers, 12,239; of full members, 1,647,719; of probationers, 187,771; total of members and probationers, 1,835,490; number of baptisms, 62,028 of children, and 69,148 of adults. Number of churches, 19,128, having a probable value of $73,199,228; number of parsonages, 6,764, having a probable value of $10,335,825; number of Sunday-schools, 21,527, with 234,159 officers and teachers, and 1,729,216 scholars. Amount of contributions: For missions, $660,701; for Woman's Foreign Missionary Society, $127,568; for church extension, $120,146; for the Tract Society, $15,086; for the Sunday-School Union, $16,169; for the Freedmen's Aid Society, $58,734; for education, $90,741; for the American Bible Society, $29,747; for pastors, presiding elders, and bishops, $7,702,441; for "conference claimants," $179,552.

General Conference.—The General Conference of the Methodist Episcopal Church met in Philadelphia, May 1st. The quadrennial address of the bishops, marking the fact that the Church had reached the hundredth year of its history as a distinct ecclesiastical organization, presented a brief review of its progress during the century of its existence. During the past four years, four new conferences had been formed. The number of members had increased by 69,232, and this figure, added to the number of deaths that had taken place during the same time, showed that the Church had received 158,787 accessions. The value of church property had increased by $8,272,000, and great success had attended efforts, particularly in the cities, to liquidate church debts. Embarrassing debts had also been removed from many of the institutions of learning of the Church, and some of them had been strengthened by liberal additions to their endowment funds. The whole number of educational establishments included 10 theological institutions, 45 colleges and universities, 60 classical seminaries, 8 colleges and seminaries for young women, and 19 schools of high grade connected with foreign missions. In these institutions, the value of the buildings and grounds was estimated at $7,594,640; the amount of endowments was $7,031,176; the number of teachers, 1,409, and of students for the last year, 28,621, with an estimate of students since their beginning of 414,518. The estimated amount of the debts still resting against a few of these institutions was $592,476. The address also spoke of the progress of the educational work among the freedmen, and of the recently begun enterprises for education among the white people, of the South; and mentioned, as evidences of the advancement of the foreign missionary enterprises, the division of the Chinese missions into an annual conference, and three distinct missions in North, Central, and West China, the enlargement of educational work in Japan, the steady accession of members in India, and the growth of the annual conferences in Germany and Switzerland, Sweden, Norway, and Italy.

The report of the Book Committee showed that the total net capital of the Book Concern, as represented in its Eastern and Western publishing houses, was $1,617,450; that the sales during four years had amounted to $6,455,488, or $365,344 more than the sales of the previous four years, and that the net profits during the same period had been $382,115. Four new bishops were elected by the General Conference, viz.: W. X. Ninde, at the time President of the Garrett Biblical Institute, Evanston, Ill.; J. M. Walden, senior book agent at Cincinnati, Ohio; W. H. Mallalieu, of the New England Conference; and Charles H. Fowler, second missionary secretary. The episcopal residences were established in Boston, New York, Philadelphia, Washington, Cincinnati, Chicago, St. Louis or Greencastle (Ind.), San Francisco or vicinity, Minneapolis, Atlanta or Chattanooga, New Orleans or Austin, Denver, and Topeka or vicinity. A proposition was urged to establish episcopal residences also in Europe and in India, but was not favored by the Conference. The Conference decided, however, to elect a missionary bishop for Africa (Liberia), whose authority should be confined to that country; and William Taylor, a local preacher, who had made extensive missionary tours for the foundation of self-supporting churches and schools in India and South America, was chosen to that office. A resolution was adopted to the effect that the Conference "reaffirm the doctrine of the fathers of our Church that the bishopric is not an order but an office, and that in orders a bishop is merely an elder or presbyter." A rubric was also directed to be prefixed to the order for the consecration of bishops, declaring that "this service is not to be understood as an ordination to an advanced grade in the Christian ministry beyond and above that of elders or presbyters, but as a solemn and fitting consecration to the special and most sacred duties of superintending in the Church."

Various efforts were made to extend the number of years in which a minister may successively be appointed to the same pastoral charge, but the Conference refused to change the present rule, which limits the term of service at one place, except in the case of missions (among which is included, as to this point, the Germany and Switzerland Conference), presidencies and professorships in educational institutions, and the administrative offices of the Church, to three years. A minute was adopted declaring that direct negotiations between pastors and churches in advance of the making of the appointments by the bishop are contrary to the spirit of the itinerent ministry, and subversive of the ecclesiastical polity of the Church, and as such should be discouraged by the bishops, pastors, and people. It was decided to be inexpedient to take action on the subjects of licensing women to exhort and preach, and of ordaining women. The Conference, by resolution, declared "the policy of the Methodist Episcopal Church to be, that no member of any society within the Church shall be excluded from public worship in any and every edifice of the denomination, and no student shall be excluded from instruction in any and every school under the supervision of the Church, because of race, color, or previous condition of servitude." It also declared that color is no bar to any right or privilege of office or membership in the Church, and that the propriety is recognized of such administration as secures the largest concession to individual preferences on all questions involving the merely social relations of members. Provision was made for the organization of the missions in Japan, Mexico, and Denmark (conditionally), into annual conferences, and for the construction of three conferences out of the existing two bodies of that class in India, if that should be deemed desirable. The order of words in a portion of the baptismal service was changed from "immersion, sprinkling, or pouring," to "sprinkling, pouring, or immersion." The General Missionary Committee was advised to consider the subject of establishing evangelizing agencies among the Roman Catholic population of the country. The Conference was asked to give a definition of the doctrine of sanctification, but, while it reiterated a steadfast adherence to the belief, it declared it not within its province to give specific and authoritative deliverance upon any one of the fundamental doctrines of the Church. A ruling, which had been made by one of the bishops, that the ordination of a Roman Catholic priest could not be recognized in constituting him an elder in this Church, was sustained. The rule requiring young preachers to advise with their brethren before taking steps toward marriage, was repealed. A proposition to change the ratio of ministerial representation in the General Conference to one delegate for every forty-five members of the Annual Conference, was adopted for submission to the members of the annual conferences. To become valid, it must receive the assent of three fourths of those members. A resolution on the subject of divorce declares that "no divorce shall be recognized as lawful by the Church, except for adultery, and no minister shall solemnize marriage in any case where there is a divorced wife or husband living; but this rule shall not apply to the innocent party, in the case of a divorce for the cause of adultery, nor to divorced parties seeking to be reunited in marriage." The propriety of the enactment of uniform codes of divorce, and of reducing the number of causes therefor, was commended to the governments of the several States. The report on temperance urged the people of the Church to use their influence to banish the social glass from society; recommended the formation of juvenile temperance societies in Sunday-schools, and that there be one temperance lesson each quarter in the Sunday-school series; that the doctrine of constitutional prohibition be taught in all the schools and colleges; and declared complete prohibition of the liquor-traffic to be the duty of civil government, and that the people ought not to allow themselves to be controlled by party organizations managed in the interests of the liquor-traffic. The pursuit of ordinary business or labor on Sunday, all unnecessary travel, the buying and reading of Sunday papers, and all forms of pleasure-taking on that day, were condemned; and the attention of all to whom is committed the care and training of youth, in the family and in the school, was directed to the danger to the tastes, the minds, and the morals of their wards arising from the general circulation of sensational and pernicious literature.

Church Extension.—The General Committee of Church Extension met in Philadelphia, November 13, Bishop Bowman presiding. The treasurer reported that the available resources of the society for the year, which included a balance of $104,599 from the previous year, and $222,990 of current receipts, had been $327,584. The disbursements for the year had been: On general account, donations, etc., $141,265; on loan fund (loans to churches, $116,254; invested in marketable securities, $70,000), $186,254; in all, $327,519. Four hundred and eighty-three churches had been aided by donations or loans, or by both, or forty-one churches more than had been aided during the previous fiscal year. Grants had been made in donations and loans, on conditions yet to be complied with, to 194 churches, of $65,650; and applications were on file from ninety-one churches for grants and loans to the amount of $32,625. The plan of inviting special contributions of $250 each for frontier churches had been of great service. Eighty-four such contributions had been received, providing an aggregate amount of $21,000.

Freedmen's Aid Society.—The annual meeting of the Freedmen's Aid Society was held in Cincinnati, Ohio, December 29. Mr. Amos Shinkel, first vice-president, presided. The treasurer reported that his total receipts for the year ending July 1, 1884, had been $187,458. This showed an apparent decrease from the previous year of $16,800; but that arose from the appearance in the last year's report of the amount of a legacy for endowments, which had swelled the receipts considerably beyond the annual average. The returns of the regular collections exhibited an increase of $15,299. The expenditures for the year had been $147,652, of which $97,700 had been applied to the maintenance of the teachers and the schools and to current expenses, and $49,952 was for real estate and buildings.

Twenty-one institutions of learning were maintained among the freedmen, and returned 106 teachers and 3,623 students. Aid had also been extended to educational work among the white population of the South, so far as it could be done without interfering with the work among the freedmen; and there were already eighteen institutions of this class, assisted by the society, which returned eighty-six teachers and more than 2,000 students.

Woman's Home Missionary Society.—The annual meeting of the Woman's Home Missionary Society was held at Cleveland, Ohio, October 28 to 31. Mrs. Rutherford B. Hayes presided. The receipts for the year had been nearly $17,000, and a balance of $5,953 was returned as being in the treasury. Appropriations were made for the ensuing year to the amount of $35,000. The objects of the society include the making provision for needy families and frontier pastors by putting them under the care of some Sunday-school or prosperous church, and the promotion of training in housekeeping and the practical industries by the establishment of "model homes," of which those at Little Rock, Ark., Holly Springs, Miss., Atlanta, Ga., Orangeburg, S. C., and Savannah, Ga., were reported as in successful operation.

General Missionary Committee.—The General Missionary Committee of the Methodist Episcopal Church met in the city of New York, November 6. Bishop Bowman presided. The treasurer of the Missionary Society reported that his receipts for the year had been $731,126, or $20,344 less than the receipts for the previous year, and his expenditures $775,224. The decrease in receipts had been wholly in the item of legacies, while the collections in the churches had been augmented. The treasury was in debt on the first day of November, 1884, $58,206. Provisions were made for the extension of the missionary work in Africa, under the supervision of Missionary-Bishop Taylor, and for the establishment of a new mission in Corea. A gift was offered by Mr. J. F. Goucher, of Baltimore, of $5,000, and accepted by the committee, provided the whole amount of $12,000 was obtained for that purpose, "for the erection of a main building, containing chapel, lecture-rooms, library, museum, etc., for the Anglo-Japanese University of Tokio and Arroyama."

Appropriations for the support of the missions during the ensuing year were as follow:

I. FOREIGN MISSIONS:	
Africa	$4,000
South America	20,500
China	69,808
Germany and Switzerland	24,600
Scandinavia	46,888
India	67,161
Bulgaria and Turkey	12,876
Italy	31,878
Mexico	34,789
Japan	34,986
Corea	8,100
Total	$354,979
CONDITIONAL APPROPRIATION for Tokio University, conditioned on donations	$12,000
II. MISSIONS IN THE UNITED STATES, not in annual conferences, to be administered as foreign missions (in Arizona, New Mexico, Utah, West Nebraska, Dakota, Montana, Nevada, the Black Hills, Indian Territory, etc.)	$82,100
III. DOMESTIC MISSIONS:	
Welsh	$200
Scandinavian	28,700
German	48,500
French	1,000
Portuguese	500
Chinese	11,900
American Indian	5,800
English-speaking	167,600
IV. MISCELLANEOUS APPROPRIATIONS	89,000
For the liquidation of the debt	64,721
Total appropriations	$850,000

Methodist Centennial Conference.—A conference in commemoration of the centenary of the organization of American Methodism by the meeting of the first General Conference of the Methodist Episcopal Church, commonly called the "Christmas Conference," Dec. 25, 1784, was held in Baltimore, Md., beginning December 10th. Duly appointed delegates attended from the Methodist Episcopal Church; the Methodist Episcopal Church, South; the African Methodist Episcopal Church; the African Methodist Episcopal Zion Church; the Canada Methodist Church; the Primitive Methodist Church; and the Independent Methodist Churches. Fraternal delegates were received from the Methodist Protestant and Bible Christian Churches. A preliminary meeting, for the exchange of greetings, was held on the evening of December 9th, in the First M. E. Church, the society of which was regarded as the legitimate successor of that of the Lovely Lane Meeting-House, in which the Christmas Conference was held. The following comparative view of the strength of the Methodist

Churches in 1784 and 1883 was printed in the official programme of the Conference:

1784.		1883.
	METHODISTS IN THE UNITED STATES.	
83	Itinerant preachers..........................	25,889
....	Local preachers..........................	34,714
14,988	Lay members..........................	3,998,620
	METHODISTS IN CANADA.	
....	Itinerant preachers..........................	1,668
....	Local preachers..........................	1,979
....	Lay members..........................	171,908
	TOTAL METHODISTS IN THE WORLD.	
197	Itinerant preachers..........................	33,885
....	Local preachers..........................	77,985
49,219	Lay members..........................	5,064,564
	Total Methodist population......	25,489,745

Bishop J. C. Granberry, of the Methodist Episcopal Church, South, presided at the opening session, while the presiding officers of the several succeeding sessions were chosen so that the several ecclesiastical organizations participating in the Conference should be represented in that office.

The programme of the subjects discussed and the papers read is as follows:

First Day.—"The Work of the Christmas Conference," Prof. John Miley, D. D.; "The Personnel of the Christmas Conference," Prof. H. B. Ridgaway.

Second Day—"The Superintendency of Asbury, and what it did for Methodism," Jesse Boring, D. D.; "The Relations of John Wesley to American Methodism," Alfred Wheeler, D. D.; "Statistical Results—Membership, etc.," D. Dorchester, D. D.; "Statistical Results—Educational and Financial," J. H. Carlisle, LL. D.

Third Day.—"Methodism in 1784 and its Outlook," J. D. Blackwell, D. D.; "Methodism in 1884 and its Outlook," O. H. Warren, D. D.; "Causes of the Success of Methodism," B. F. Lee, D. D.; "Dangers to Future Methodism," J. H. Vincent, D. D.

Fourth Day.—"Rise and Progress of Methodism in Canada," J. A. Williams, D. D.; "Methodist Pioneers and their Work," Prof. C. J. Little; "Is Methodism losing its Power over the Masses?" Bishop S. T. Jones.

Fifth Day.—"The Aim and Character of Methodist Preaching," A. S. Hunt, D. D.; "Methodist Means of Grace," Bishop L. H. Holsey; "The Doctrinal Unity of Methodism," Anson West, D. D.; "Guards to the Purity of our Doctrinal Teaching," R. N. Davies, D. D.

Sixth Day.—"The Four Points of Methodism—Heart Conversion, Assurance, Christian Experience, and Sanctification," J. E. Evans, D. D.; "The Influence of Methodism on other Denominations," J. M. King, D. D.; "Value of the Press to Methodism," B. St. J. Fry, D. D.; "Value of the Periodical Press to Methodism," O. P. Fitzgerald, D. D.

Seventh Day.—"What Methodism owes to Women," J. M. Buckley, D. D.

Public meetings were held in the evenings in the several Methodist churches of the city, at which were discussed in addresses from the platform the topics of "Missions," "The Educational Work and Spirit of Methodism," "Temperance," "The Sunday-School," and "The Mission of Methodism to the Extremes of the South." A special paper was read by the Rev. J. H. Vincent, D. D., on "The Methodist Church and its Growth; or, the Objects of the Oxford League" (the name of a club for the study of the Scriptures, and for religious exercises and improvement, of which John Wesley was a member, while a student at the University of Oxford). The Conference recommended the establishment of leagues in the various churches, under the *ex-officio* presidency of the pastor, for the purposes of the promotion of a thorough knowledge of the Bible, the cultivation of Christian character, and the gaining of a knowledge of the Christian classics, and kindred objects. A report on morals was adopted, in which intemperance, divorce, except for cause prescribed in the Scriptures, and irreligious popular amusements were condemned, the sanctity of the Sabbath was insisted upon, and a general expression was made in favor of all proper and legitimate measures having in view the progress of educational institutions. A pastoral address was adopted and sent out.

II. Methodist Protestant Church.—The following is a summary of the statistics of this Church as they are given in the "Methodist Protestant Year-Book" for 1884. Number of annual conferences, 48; of itinerant ministers, 1,409; of local ministers, 977; of lay members in full membership, 121,853, with 3,758 probationers, making a total of 125,611 lay members; number of Sunday-schools, 1,624, with 14,222 officers and teachers and 83,222 scholars; number of churches, 1,318; of parsonages, 800; value of churches and parsonages, $2,988,490. Collections for missions, $7,475; for ministerial education, $3,183. Ninety-five churches and 22 parsonages were built during the year.

Reports from the Book Concerns were presented to the General Conference, showing that the net assets of the house in Baltimore were $9,401, and those of the house in Pittsburg, Pa., were $20,865. The Board of Ministerial Education reported that its receipts for the past four years had been $11,017, and its expenditures $9,914; and that its net assets were $5,021. Eighty-three young men had received assistance from the board, 55 of whom were engaged in the work of the Church.

General Conference.—The General Conference of the Methodist Protestant Church met in Baltimore, Md., May 16th. The Rev. W. S. Hammond, of Maryland, was chosen president. The General Conference of 1880 had adopted a proposition for holding a convention for the consideration of constitutional changes, upon the ratification of which by two thirds of the annual conferences, the present General Conference would be empowered to constitute itself into such a convention. The committee to which the subject was referred reported that twenty-five conferences had voted for a convention without limitations, or according to the resolutions of the General Conference, and six conferences had voted for a convention with special instructions; making thirty-one conferences in all, or more than two thirds, which had voted favorably upon the proposition. The General Conference accordingly constituted itself a General Convention. The purposes of the organization in this form were to consider verbal alterations in the constitution of the Church, and such changes as might be recommended by two thirds of the annual conferences; and to consider questions concerning the modification of the rules bearing on the time for which a pastor may serve a single charge. Upon the last subject, an article was adopted as an amendment to the restrictive rules, declaring that "no rule shall be made to abolish an efficient itinerant ministry, but each annual conference shall have authority to determine for itself whether any limit, or, if any, what limit, shall be to the renewal of the annual appointments." The Convention resolved that it had no jurisdiction in deciding the qualifications for admission to the Church, as that matter was left to individual churches, or to annual conferences. The attention of the Conference was called to a case in which a woman had been ordained elder by one of the annual conferences, and a resolution was adopted, declaring the act unauthorized, and refusing recognition of it. An article was adopted, providing that alterations in the Constitution may in future be made on the recommendation of the General Conference, by overtures to the annual conference, the measures proposed in which overtures shall be valid when approved by two thirds of the annual conferences. A proposition to separate the home and foreign departments of the Board of Missions was negatived. The Woman's Foreign Missionary Society was adopted, to have charge of the work for women and girls in all the missions of the Church that shall be established in the foreign field. The President of the Convention was authorized to appoint a committee to correspond, having union in view, with the Congregational Methodist Church. The subject of union with the Cumberland Presbyterian Church was considered, and the President of the Convention was authorized to appoint five commissioners to correspond with commissioners from that body upon a plan of union, with instructions to report progress to the annual conferences. A committee was appointed on the subject of a second Œcumenical Council of Methodist Churches, to be held in the United States in 1887. To a communication, inviting the Methodist Protestant Church to participate in the centennial celebration of the organization of the Methodist Episcopal Church in the United States, to be held within the current year, the Conference replied that, "being duly impressed with the Christian courtesy and good-will which this invitation implies, we would respectfully state that, while as a denomination we could not feel free to appear as participants in the celebration, it nevertheless affords us much pleasure to return our Christian acknowledgments for the invitation so kindly extended"; and a fraternal commission was appointed to convey to the Centennial Conference, to be held in Baltimore, the greetings of the Convention, and its grateful recognition of "what God has wrought in this land through organized Methodism, both Episcopal and non-Episcopal."

III. African Methodist Episcopal Church.—"The Budget," published by the financial secretary of the General Conference, gives the following general summary of the statistics of the African Methodist Episcopal Church for 1884:

Number of bishops, 9; of annual conferences, 41; of ministers, 2,540; of church organizations, 3,978, under whose control are 2,742 church-buildings; of members, 390,000; of probationers, 15,000, making in all 405,000 members and probationers; number of persons studying in the conference classes, 1,413. The "Budget" also gives the following estimate of the numbers of full members in all the African and colored Methodist churches in the United States:

African Methodist Episcopal Church..........	390,000
African Methodist Episcopal Zion Church.........	300,000
Colored Methodist Episcopal Church	155,000
Methodist Episcopal Church (colored members)...	166,189
Union Methodist Episcopal Church................	3,500
Total	1,014,689

Adding to these the colored communicants in other churches (Baptist, 661,358; American Missionary Association, 4,961; Presbyterian freedmen's churches, 11,108; Methodist Episcopal Church, South, 1,245; other denominations, 20,000, etc.), we have the whole number of colored communicants in the churches of the United States not far from 1,700,000, or one for $3\frac{1}{10}$ of the whole colored population.

The whole number of Sunday-schools in the African Methodist Episcopal Church is returned at 3,417, with 26,420 officers and teachers, and 178,284 pupils. The Financial Board reported to the General Conference that its receipts for the year ending April 24, 1884, had been $52,852, and its disbursements $50,652. Its receipts for the four years since the preceding General Conference had been $179,854, and its expenditures $177,653. Of the receipts, $169,389 were from contributions in the form of "dollar-money." The receipts in the publication department for four years had been $63,121, and the expenditures $63,064. The department returned a net capital of $24,578. The educational interests of the Church are under the care of a Board appointed by the General Conference. The institutions are as follow: Wilberforce University, Wilberforce, Ohio, 5 departments, 7 in faculty, 609 students; Johnson High School, Raleigh, N. C., 2 departments, 5 instructors, 338 students; Allen University, Columbia, S. C., 5 departments, 9 instructors, 349 students; William Paul Quinn College, Waco, Tex., 5 departments, 4 instructors, 190 students; St. James Academy, New Orleans, La., 1 instructor, 150 students; Divinity and High School, Jacksonville, Fla., 2 instructors; Ward Normal Collegiate Institute, Huntsville, Tex., 2 departments, 3 instructors, 164 students; Turner

College, Hernando, Miss.; Western University, Quindora, Kansas; Morris Brown University, Atlanta, Ga.; and Garfield University, Montgomery, Ala. All but the first two of these institutions have become active only since 1880. The total value of their property is given at $151,600, but some of them are laboring under heavy indebtedness. Thirty-three subordinate schools are also maintained in South Carolina. The total receipts of the Home and Foreign Missionary Society for four years, including special funds, were $34,811, and the expenditures were $36,112. The society has been organized only four years, and has labored to establish a mission at Port-au-Prince, Hayti, having in view, also, missions in Africa and San Domingo. The society returns 25 missions in the Indian Territory, with 25 missionaries, 22 churches, 26 Sunday-schools, and 573 communicants. In the home missions, the increase had been so rapid that several new conferences had been formed, and at least three others were talked of. The Church has a publishing-house in Philadelphia, from which is issued the "Christian Recorder," weekly, as its official newspaper organ. The income of the publishing-house for the four years ending May 1, 1884, was $68,139, and the whole sum was expended. The establishment returned to the General Conference its assets as $31,117, and its indebtedness as $6,038. The secretary of the Missionary Society reported that the receipts of that body for the past four years had been $34,800, and its expenditures $36,112.

General Conference.—The General Conference of the African Methodist Episcopal Church met in Baltimore, Md., May 5th. The condition of the affairs of the Church was reviewed in the quadrennial address of the bishops, and attention was called in the same paper to some topics which the Conference would be invited to consider. The negotiations for a union with the British Methodist Episcopal Church had been carried to a successful termination, and the Conference directed that a declaration be issued announcing the consummation of the union. The territory covered by the British Methodist Episcopal Church, which is included chiefly in Canada and Bermuda, will constitute the tenth district of the African Methodist Episcopal Church, and will be under the Episcopal jurisdiction of R. R. Disney, bishop of the former body. Provision was made for the admission of local preachers to the General Conference as representatives of the laity. Declarations were adopted denying the doctrine of the apostolic succession of bishops, and denouncing ritualism and the wearing of gowns, surplices, and other badges of office of bishops and ministers. A report was adopted refusing to recommend camp-meetings, but allowing them to be held. The office of presiding elder, the adoption of which had hitherto been optional with the Conference, was made universal. The publication of a quarterly magazine was determined upon.

IV. African Methodist Episcopal Zion Church.—The statistics of this Church are very incomplete. The statistical secretary reports the following items, which are, however, mostly regarded as falling short of giving a true representation of the condition of the Church: Number of conferences, 21; of elders, 500; of deacons, 347; of traveling preachers, 234; of local elders, deacons, and preachers, 1,800; of exhorters, 1,146; of members in full connection, 154,807; of probationers, 14,232; of churches, 1,180; of parsonages, 356; of Sunday-schools, 2,071, with 9,222 officers and teachers and 90,323 scholars; value of church property, $4,109,321. The real total number of members of the Church is believed to be 225,000 or 250,000.

The African mission returns one missionary, 10 local preachers, 14 exhorters, 5 elders and deacons, 500 members, and 158 probationers, or a total, exclusive of the missionary, of 687 members.

The receipts of Zion Wesley Institute, Salisbury, N. C., for four years were returned to the General Conference at $17,845. Its liabilities were estimated at $5,844. The school was attended by 146 pupils.

The receipts of the Book Concern for four years had been $8,529, and its expenditures $8,340, while its liabilities were $1,979.

General Conference.—The General Conference of the African Methodist Episcopal Zion Church in America met in its seventeenth session in the city of New York, May 7th.

The bishops presented a "quadrennial address," relating the transactions of the Episcopal Board during the previous four years, and reviewing the condition of the connectional interests. In accordance with the instructions of the preceding General Conference that they should make a new assignment of episcopal districts, they had assigned to each bishop the attendance upon a certain number of conferences, the results of which had been to make the several members of the board each more extensively acquainted with the condition and character of the connection; to bring them more frequently together; and to give more unity to the episcopal superintendence. The Foreign mission (in Africa) had prospered; and the missionary, the Rev. Andrew Cartwright, had been empowered to hold annual conferences in Africa, and to authorize and appoint suitable persons to preach and teach the people, "subject to the ratification or modification of the General Conference." The Zion Wesleyan Institute at Salisbury, N. C., had been strengthened by gifts of $9,000 obtained through the agency of its principal from friends in England, and by the contribution of $1,000 from citizens of Salisbury. The efforts in behalf of church extension had been attended with a success that was marked by the building of several fine churches. The financial resources of the Church had been greatly strengthened. Much of the time of the General Conference was spent in the consideration of the case of Bishop Hilleny, who was charged with conduct unbecoming to a bishop. He was deprived of his episcopal office, and was remanded to the annual conference within whose jurisdiction he was living for the trial of his Christian character. A general financial plan was adopted, the basis of which is an assessment of fifty cents a year upon each member of the Church over fifteen years of age and able to pay, for the constitution of a general fund. The proceeds of this fund are to be apportioned: 1. To the payment of the salaries of the bishops and the expenses incurred in their regular episcopal tours. 2. To the Zion Wesley Institution. 3. To the Book Concern. 4. To the periodical "The Star of Zion." 5. To the superannuated ministers. 6. To the payment of the salaries of the general steward and secretary. Provisions were made for the suspension by the General Conference of bishops under charges and for their trial by the annual conference from within whose bounds the charges may have come; for the trial of local preachers and exhorters; and for the constitution of courts of appeal for ministers convicted by an annual conference. Provision was made that when a church-member leaves the vicinity of his church without a letter, and remains away six months without communication, his name shall be stricken from the roll of members and placed upon the list of probationers. Female members of the church were declared to have all the rights and immunities of male members, including the right to be licensed as evangelists, except the rights to orders and the pastorate. The subject of the appointment of evangelists was referred to the Board of Bishops. An additional course of studies to those already laid down in the Discipline was recommended for applicants for admission to an annual conference. It includes a fair knowledge of orthography, reading, writing, geography, history, grammar, and the study of the following books in theology: Binney's Theological Compend, Bible History, Primary History of Christian Evidences, by Hurst, and the History of the African Methodist Episcopal Zion Church. The Conference also recommended that the studies required of an applicant for admission to an annual conference be pursued by applicants for local preacher's license; and that applicants for exhorter's license be required to read and write before receiving license. The ministers and people of the Church were exhorted to teach the duty of abstinence from all that intoxicates; the use of unfermented wine in the Lord's Supper was advised; and each minister was recommended to preach two temperance sermons each year to his congregation. Resolutions were passed touching the deaths of John F. Slater and Wendell Phillips, benefactors of the colored race.

V. Wesleyan Methodist Connection. — The following is the "General View of the Statistics of the British and Affiliated Conferences" of this Connection as they are presented in the "Minutes of Conference for 1884":

COUNTRIES.	Members.	On trial.	Ministers.	On trial.	Supernumeraries.
I. In Great Britain	410,866	35,272	1,616	51	286
II. In Ireland and Irish Missions	24,866	591	183	11	43
III. In Foreign Missions ...	71,881	6,155	265	91	9
IV. South African Conferences	21,998	9,529	93	53	9
V. French Conference	1,877	149	25*	1	5
Totals	530,988	51,796	2,181	206	354

Wesleyan Missionary Society.—The annual meeting of the Wesleyan Missionary Society was held in London, May 5; Mr. J. S. Sutcliffe presided. The entire income of the society for the year, including the receipts for special objects, had been £150,106, and the expenditures had been £150,161. The Ladies' Committee had also expended £5,197, besides furnishing school-materials, clothing, etc., to many parts of the mission-field. The following is the "General Summary" of the missions, as returned by the secretary of the society, under the immediate direction of the Wesleyan Missionary Committee and British Conference in Europe, India, China, West Africa, the Transvaal, and the West Indies:

Central or principal stations, called circuits	381
Chapels and other preaching-places, in connection with the above-mentioned central or principal stations, as far as ascertained	1,654
Missionaries and assistant missionaries, including supernumeraries..................................	369
Other paid agents, as catechists, interpreters, day-school teachers, etc..............................	1,743
Unpaid agents, as local preachers, Sunday-school teachers, etc..................................	5,977
Full and accredited church-members...................	71,904
On trial for church-membership	6,236
Scholars, deducting those who attend both the day and Sunday schools..............................	79,646

Benevolent Enterprises and Funds. — The Committee of the Wesleyan Home Mission and Contingent Fund reported to the Conference that the receipts for the fund for the year had been £34,017.

The ordinary income for the year of the Chapel Fund had been £9,475. The erection of 111 new chapels had been sanctioned, and 143 new chapels, schools, etc., had been completed, at a cost of £385,765. The amount of chapel debts paid off during the year was returned at £58,679. The Fund for the Relief and Extension of Methodism in Scotland returned an income of £469, mostly from the interest of invested funds. The income of the Metropolitan Chapel Building Fund, from all sources, had been £9,602. The expenditure left a balance of £2,149 in the bank on the grants account. This fund was commenced in 1861, and had aided in the erection of some 65 large chapels in London, with seating accommodations for 65,000 persons, at a total cost, when completed, of more than £600,000, of which the fund had contributed and promised £170,000. The Theological Institutions made a return of 140 students at the four schools. The Fund for the Extension of Methodism had received and considered 126 applications for aid, and had paid £8,738 for sites and grants for chapels. The income of the Educational Fund had been £7,150. Two hundred and twenty-four students were returned in the training-colleges at Westminster and Southlands, and in the 849 day-schools an attendance of 177,496 pupils. The income of the day-schools had been, from school pence, £38,720; from Government grants, £104,914; and from subscriptions and other sources, £23,948. The Connectional Sunday-School Union returned 6,601 Sunday-schools, with 125,018 officers and teachers, and 852,459 scholars, and 2,737 Bands of Hope, with 277,530 members. The Committee of the Thanksgiving Fund reported that it had received in promises £303,000, and in actual cash payments, £296,740. Adding accrued interest, the total receipts had been £297,518. Arrangements were made for closing the accounts of this fund, which had been instituted for a special occasion and for special purposes during the ensuing year. A net increase for the year of 3,281 members was returned in the British districts.

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* The French ministers who are employed in the Channel Islands district are not included in these returns.

Wesleyan Methodist Conference.—The one hundred and forty-first Conference of Wesleyan Ministers met in Burslem, July 22. The Rev. Frederic Greeves, D. D., was chosen president. A scheme for the organization of a West Indian Conference, which had been under consideration for two years, was presented and adopted. It provides for the institution of two West Indian Annual Conferences; the Western Conference to include the Jamaica and the Hayti districts, and the Eastern Conference to include the Antigua district and the British Guiana district; the two conferences together to constitute the West Indian General Conference, which shall meet every three years, and be affiliated with the British Conference. The Rev. George Sargeant was appointed the first President of the new Conference. A statement was made by a delegate from the newly constituted South African Conference, which had held its first meeting during the present year, showing that while the churches constituting it had returned, in 1873, 85 ministers, 13,718 church-members, with 4,118 on trial, and 13,081 Sunday-school scholars, they now returned 174 ministers, 21,993 church-members, with 9,529 on trial, and 24,069 Sunday-school scholars. Several ministers and circuits had also been transferred to the districts beyond the Transvaal, which, had they been included in the present enumeration, would have shown a larger growth for the Church. A library, containing 10,000 volumes, 15,000 unbound dissertations, and 10,000 dissertations in German, was offered by a gentleman, who desired his name to remain unknown, and was accepted by the Conference to constitute a Conference library; and measures were taken to institute regulations for its care and use. The attention of the Conference was called to the case of a minister who held the doctrine of "conditional immortality," in which is involved the belief that the wicked, after suffering a period of punishment for their sins, will eventually pass out of existence; a doctrine contrary to the standards of the Methodist Church. The minister had been allowed to exercise his ministry in the Church, in the hope that he might come into accord with its views on the subject, but he had not done so. His case was disposed of by a decision of the Conference to retain him as a "supernumerary," on condition that he should not preach in its pulpits or disseminate his opinions among the Methodist people.

South African Conference.—The South African Conference was held in April. The report of the Educational Committee showed that there were connected with the Church 8 English and 264 native schools, with a total of 14,977 scholars, or 261 more than were returned in the previous year. Of these, 560 were white, and 14,422 African or colored children. The Sunday-School Committee returned 832 English and 167 native Sunday-schools, with 6,664 European and 11,504 native scholars. A committee to consider the question of higher education among the natives was continued. Provision was made for the formation of a South African Missionary Society. The question of establishing a mission press and a Connectional Book Concern was referred to a committee for consideration.

VI. United Methodist Free Churches.—The following is a summary of the statistics of this body, as they were reported to the Annual Assembly in July, 1884:

Number of itinerant preachers, 378; of local preachers, 3,330; of leaders, 4,068; of members, 75,841; of members on trial, 8,628; of chapels, 1,350; of preaching-rooms, 184; ot Sunday-schools, 1,350, with 26,631 teachers and 196,509 scholars. The total income of the United Methodist Free Churches Home and Foreign Missions for the year ending May 1, 1884, was £17,688, and the expenditures were £19,311. The annual report mentioned, as one of the most important events in the year's history of the foreign departments, the opening of the Galla Mission, in East Africa, for which £1,000 had been secured. The churches of Sierra Leone, Western Africa, had contributed £330 to the General Missionary Fund. The subject of Methodist union was under consideration with the churches in Australia and New Zealand. An increase of 226 church-members was reported in Jamaica, where also 1,500 names were registered on the rolls of the day-schools. Report was also made of the mission in China, where three English missionaries were employed.

The Annual Assembly of the United Methodist Free Churches met in Newcastle-on-Tyne, July 25th. The Rev. Edwin Askew was chosen President. The secretary of the Commemorative Fund, the amount of which is intended to be £30,000, reported that £24,163 had been promised to it. This fund is intended to commemorate the twenty-fifth anniversary of the organization of the connection, and to be distributed among its various benevolent and educational enterprises. The Book Room returned a profit of £756. The Assembly directed that a "History of Free Methodism" be published as an introductory chapter to the forthcoming edition of Messrs. Askew and Boyden's "Hand-Book of Free Methodism."

MEXICO, a republic of North America. Area, 761,640 square miles; population in 1883, 10,025,649.

Territorial Subdivision.—The republic consists of twenty-eight States and the Territory of Lower California, the Federal District having been converted in 1884 into a State, under the name of the "Valle de México." It is the smallest State in the Union (231 square kilometres), but one of the most populous, containing 354,340 souls. The bulk of the population is found in the southern part of the country; about 82 per cent. of the total population reside south of the parallel of Tampico, and more than half the wealth of the country is found south of the northern boundary of the new State alluded to, in which the city of Mexico is situated. There are 146 cities, 372 towns, 4,186 villages, five missions, 5,689 haciendas, and 14,605 ranches, besides 2,213 groups of houses, tabulated as congregations, barrios, rancherias, etc.

Property Value.—The value of private real estate, rural, is $773,000,000; private real estate in cities, $2,568,036,000; cattle of all kinds belonging to individuals, $126,000,000; property belonging to the nation, $240,000,000; the total real estate valued at $3,549,060,000. The agricultural products are valued at $177,451,086, and the industrial products at $14,009,000.

Government.—The President of the Republic is Don Porfirio Diaz, who was elected for four years, his term of office beginning Dec. 1, 1884. His Cabinet is composed of the following ministers: Foreign Relations, Señor Ignacio Mariscal, now Minister to England; War, Gen. Pedro Hinojosa; Justice, Señor Joaquin Baranda; Treasurer, Señor Manuel Dublan; Interior, Señor Manuel Romero Rubio.

The Governors of the States are elected for four years. The Governor of the Territory of Lower California is appointed by the Federal Government. The Minister Plenipotentiary to the United States is Señor M. Romero; the Minister to Mexico is Hon. Philip H. Morgan. The United States Consul-General in the city of Mexico is David H. Strother.

Finances.—The national and state finances, as shown by the budget estimates for the current fiscal year, exhibit these details:

REVENUE.	Budget of 1884–'85.
Custom-House	$16,000,000
Custom-House at Mexico and town dues	2,000,000
Stamp dues	6,000,000
Direct taxes	900,000
Mint	700,000
Instruction fund	60,000
Post-Office and telegraphs	1,000,000
Lottery	800,000
Sundry incomes	1,200,000
Income of individual States	7,500,000
Grand total	$36,160,000
EXPENDITURE.	
The Legislature	$1,067,293
The Executive	48,333
Supreme Court	429,674
Foreign Affairs	377,660
Interior	3,839,214
Justice and Public Instruction	1,284,718
Public Works	6,151,870
Finance	4,908,439
Army and Navy	8,252,774
Expenditure in the different States	7,500,000
Grand total	$33,825,488

The increase of the national revenues of Mexico, a sign of the awakening of enterprise, is shown in the following table:

YEARS.	Total revenue.	Customs.
1878–'79	$17,811,125	$12,788,394
1879–'80	21,986,165	13,488,264
1880–'81	22,142,039	....
1881–'82	25,725 000	....
1882–'83	34,000,000	....
1883–'84	36,000,000	....

The stamp-tax went into effect on April 7. It was levied on wines, liquors, canned and preserved goods, foreign glassware, books, and hats; imposing 1 per cent. on the price of jewelry; expensive wines, twenty cents a bottle, and wine in barrels 10 per cent.; foreign beer, five cents a bottle; playing-cards, 50 per cent.; canned goods, 1 per cent.; bonnets, boots, and shoes (worth over $2), 1 per cent., and fine hardware, 1 per cent. Goods in store were to be stamped immediately, and those in warehouses within one month. The measure being highly unpopular, the Government modified it two days later, requiring stamps only on goods as sold, and exempting articles in stock.

The silver coinage of Mexico, for the fiscal year 1882–'83, amounted to $24,083,522, and the gold to $407,600, a total of $24,491,123. In April a decree was issued by the President of Mexico, ordering that on and after May 15, 1884, the duty upon all goods imported into the country should be increased 5 per cent.

The foreign debt embraces the following items: English loan of Oct. 14, 1850, $89,252,360; agreement of indebtedness to English bondholders of Dec. 4, 1851, $5,900,025; ditto to Spanish of Dec. 6, 1853, $1,231,775; ditto, ditto of Nov. 12, 1853, $5,553,287; debt to the United States of July 4, 1868, $1,875,123; internal debt, $40,241,215; grand total, $144,053,785.

Early in May the run on the Monte de Piedad Bank had created a panic among depositors and a distrust in the financial stability of all the banking firms in the city. The Bank of London, Mexico, and South America was the least disturbed, having been quietly withdrawing its notes since January 1, in anticipation that a monopoly of circulation would be given the consolidated National and Mercantile Banks. The panic was soon over, when it appeared that the Government made no demand on the Monte de Piedad Bank for a loan. The manager of the latter did not call on the other banks for assistance until too late, and payment had to be suspended. On July 4 this bank made a statement of its condition, showing it to be favorable. At the end of May the assets over the liabilities were $1,422,000, calculating the real estate at cost, while values had enormously increased. Claims to the amount of $1,640,000 had been liquidated at par since the failure of the bank. Half a million dollars' worth of notes of the denomination of $100 were burned on the same day in the presence of the Government accountant-general and notary, but $1,016,000 out of a former circulation of $4,500,000 remaining unredeemed. Confidence in the institution was restored, but it was resolved to discontinue the banking department.

Meanwhile the Government had made an arrangement for a loan of $3,000,000 to meet its temporary needs, and the new consolidated National Bank secured for the Government what was supposed to be impossible, a European loan of $20,000,000. In return, the Government extended, by charter, to the consolidated bank the privilege of exclusive note issue. Everything had been managed by Edward Noetzlin, the gentleman who in September represented the Mexican Government in its negotiations with the British holders of Mexican bonds, perfecting articles of agreement for the adjustment of the matter, and his report was submitted to Congress in November. The agreement provides for issuing £17,200,000 of new bonds, £14,448,000 of these bonds to be used in canceling the old debts of 1851 and 1837, besides the unpaid interest and a few minor items. The bill before Congress also provided for setting aside part of the revenue of the republic to meet the annual interest. When the particulars of this arrangement were made known in Mexico, a storm of indignation arose, because of the discrepancy between the amount of new bonds the Government was to issue and the sum to be applied to the conversion of the old indebtedness, leaving £2,792,000 to pay the expenses of the adjustment. The bill to authorize this settlement was rejected by Congress on November 21, amid great excitement and under some outside pressure.

Two days after his inauguration, President Diaz succeeded in raising sufficient funds for the temporary needs of the Treasury, and to pay the Government employés in full. He also took the necessary steps to pay regularly the American railway subsidies, amounting to 14 per cent. of the customs duties.

Postal Service.—The number of post-offices in 1884 was 892, of which 53 are chief offices, 266 express offices, and 573 agencies:

MAIL MATTER DISPATCHED IN 1882–'83.

CLASS OF MATTER.	In the Interior.	INTERNATIONAL.	
		Received.	Forwarded.
Ordinary letters	5,766,164	333,700	548,721
Government letters	3,694,507	......	......
Registered letters	215,508	14,327	8,157
Postal-cards	....	5,621	10,039
Samples	8,456	11,226	3,803
Newspapers, etc	3,601,290	406,302	160,836
Total	13,285,925	771,176	731,556
Grand total			14,788,657
Gross receipts			$817,243.00

In May the railway mail bureau completed the schedule for the mail service between points in the United States and the city of Mexico. The service is daily, and the running time between New York and the city of Mexico is six days twenty-three hours and ten minutes, while the return trip is made in seven days one hour and twenty minutes.

Telegraphs.—There were in operation on June 30, 1884, 20,500 kilometres of Government lines; 1,484 belonging to individual States; 3,502 the property of private companies; 5,000 to railroads, and 875 of Mexican cable, together 31,361 kilometres, or 19,757 miles. In 1883 the length of lines measured 28,123 kilometres; there was consequently an increase in a single year of 3,238 kilometres, or 2,040 miles. There are 325 offices.

Railroads.—The Mexican railroad system, at the close of 1884, was made up of these lines:

	Kilometres.
Vera Cruz to Mexico	424
Vera Cruz to Jalapa	120
Vera Cruz to Medellin	22
Puebla to Apizaco	47
Tehuacan to La Esperanza	50
Puebla to Villa de Libres	93
Irolo to Pachuca	60
Mexico to Yantepec	161
Mexico to Calpulálpan	121
Puebla to Matamoros Izucar	50
Puebla to San Juan	92
Puebla to San Martin	38
Mexico to Paso del Norte	1,970
Silao to Guanajuato	18
Colima to Manzanillo	50
Mexico to Acámbaro	286
Acámbaro to Morelia	92
Acámbaro to San Miguel	110
Matamoros to Monterey	75
Laredo to Saltillo	379
Piedras Negras to Monclova	150
Altata to Culiacan	62
Mérida to Progreso	36
Mérida to Peto	50
Vera Cruz to Chalchicomula	25
Vera Cruz to Alvarado	55
Chalco to Tlalmanalco	20
Guaymas to Nogales	426
San Luis to Tampico	150
Tramways	225
Total	5,457
Building	335
Grand total	5,792

Commerce.—The amount of goods and specie exported during the fiscal year 1882–'83 was $41,800,000, which included $17,063,767 in silver coin, the export being distributed as follows: To England, $17,800,000; United States, $16,700,000; France, $4,200,000; Spain, $2,000,000; Germany, $1,100,000; South America, $400,000; and other countries, $100,000.

The value of exports from Mexico during each year since 1873, for which data can be procured, has been as follows for the years ended June 30:

1873	$35,594,005	1879	$29,891,477
1874	27,658,708	1880	32,668,554
1875	27,318,788	1882	29,088,298
1878	29,285,660	1883	41,807,595

The exports of articles other than the precious metals during the year ended June 30, 1883, consisted of the following:

COMMODITIES.	Values.
Henequen (a kind of hemp)	$3,811,062 64
Lumber	1,917,328 67
Coffee	1,717,190 85
Hides and skins	1,658,165 92
Istle (another kind of hemp)	596,588 28
Animals, living	684,876 18
Vanilla	448,850 75
Tobacco	272,160 18
Sugar	198,865 16
Cutch	159,882 72
Roots	123,488 01
Honey	115,817 56
Beans	90,641 11
Calicoes (Indian)	82,205 88
Fruits	78,898 42
Dye-wood	74,628 68
Copper	65,996 00
Indian corn	63,684 11
Horse-hair	62,007 77
Sarsaparilla	50,699 04
Lead	47,554 88
Mother-of-pearl	44,414 00
Medical plants	34,592 41
Sugar-crust	32,182 17
Chick-pea (a kind of pulse)	28,855 44
Leguminous pulse	19,596 60
Pearls	18,500 00
Spices	17,884 87
Cereals	2,868 00
Aniline	680 50
Cacao	508 00
Other articles	219,478 46
Total	$12,178,987 66

The following statement shows the value of the commerce between the United States and Mexico:

Year ended June 30th.	EXPORTS.		Total Exports.	Imports.
	Domestic.	Foreign.		
1880	$6,065,974	$1,800,519	$7,866,493	$7,209,598
1881	9,198,077	1,973,161	11,171,238	8,817,802
1882	13,324,505	2,158,077	15,482,582	8,461,899
1883	14,370,992	2,216,628	16,587,620	8,177,128
1884	11,089,603	1,614,689	12,704,292	9,016,486

American Goods in Mexico.—Consul Campbell reported that one American sewing-machine firm sold 1,800 machines in Monterey in 1883. Two stores imported 2,254 American plows, and American agricultural implements have driven the English and German goods out of the market. About 160,000 gallons of American kerosene were sent to Monterey in fourteen months, and the price at retail there was 75 cents a gallon.

Subsidized Steamship Company.—The Compañía Mexicana Transatlántica was organized in Mexico in 1884, with Dr. José María Bermejillo as president, and Baring Brothers as the English agents. It is the intention of the organizers of the company to have six steamers on the line, but at present there are but three—the Oaxaca, the Mexico, and the Tamaulipas. The capital was furnished in Mexico, and a large subsidy is allowed to the line by the Mexican Government. The pioneer ship Oaxaca was launched in Glasgow. She has a gross capacity of 4,320 tons and a net capacity of 2,670 tons. Her length over all is 400 feet, her beam 44 feet, and her depth 32 feet. She is a three-masted, brig-rigged vessel, with triple suspension engines of 5,000 horse-power, and is admirably arranged for tropical trade. The cost of the steamer was about $600,000.

Army and Navy.—The military force of the republic consists of an army numbering 18,894 men, with 1,741 officers, and a navy of four gunboats.

Events of 1884.—The year will be memorable in Mexican annals on account of the opening of uninterrupted direct rail communication with the United States. Continued stagnation in business was caused partly by excessive importation in the preceding years, and in part by injudicious direct taxation that weighed heavily on local commerce. Government and general finances have also been in continual straits, and Congress has finally rejected the agreement with British bondholders, under pressure of public opinion that condemned the terms of the arrangement. At one time, in the summer, Mexico seemed on the brink of revolution, but the conspiracy was detected and the would-be revolutionists were incarcerated. Fortunately, the reaccession to power of Porfirio Diaz, and the hope that he would restore a normal condition where there seemed inextricable financial confusion, calmed the public mind. The troubles were aggravated by the severe drought and failure of the Indian-corn crop in a portion of northern Mexico. Confidence in the new administration, however, opened up a fair prospect toward the close of the year.

Condition of the Country.—In his first message, on the opening of Congress, April 1, President Gonzalez, predecessor of Porfirio Diaz, said:

> The relations with foreign powers are cordial. The negotiations for renewing relations with England continue. The reciprocity treaty with the United States will exercise a powerful influence on the commerce of both countries. The railroads are showing good results. The main line of the Mexican Central has been completed, and will be opened to the public to-morrow. The total mileage of railroads in the republic is 3,528, and the telegraphic system has largely increased since the last session of Congress. A line of steamers to Asia has been subsidized. The fusion of the National and Mercantile Banks is complete. Their action concerning the settlement of the English debt has not yet been determined.

On the reopening of Congress, September 16, the President said that a commission would soon sail for China and Japan to develop Mexican commercial relations and interests, and that the subventions to steamship lines had been amplified, the most important contract, with the American line, having been extended two years. The message dwelt upon the development of railways and telegraphs, colonization, and harbor improvements, winding up with announcing that a new tariff would soon be submitted to Congress.

Relations with the United States.—The President of the United States, in his annual message to Congress, Dec. 1, 1884, said:

> During the past year the increasing good-will between our own Government and that of Mexico has been variously manifested. The treaty of commercial reciprocity concluded Jan. 20, 1883, has been ratified, and awaits the necessary tariff legislation of Congress to become effective. A full treaty of commerce, navigation, and consular rights is much to be desired, and such a treaty I have reason to believe that the Mexican Government stands ready to conclude. Some embarrassment has been occasioned by the failure of Congress at its last session to provide means for the due execution of the treaty of July 29, 1882, for the resurvey of the Mexican boundary and the relocation of boundary monuments.

Relations with England and Canada.—On Aug. 11, 1884, Lord Edmund Fitzmaurice, Under Secretary of State for Foreign Affairs, announced in the British House of Commons that diplomatic relations had been resumed with Mexico, and that an agreement had been signed with that country, placing England upon the "most-favored-nation footing." The opening of negotiations for a commercial treaty between the two countries was viewed with particular satisfaction in Canadian mercantile circles, believing as the merchants did that a large and profitable trade between the Dominion and Mexico would follow closely upon the successful consummation of the treaty. On October 30 news reached Ottawa that the Mexican Senate on the previous day had ratified the agreement, and that the President approved it.

Orchilla-Weed.—This has become a very interesting product, exported from the ports of Magdalena Bay, Lower California. The weed is collected on the lands bordering on the northern portion of the Pacific side of this Territory. Although the article is taxed at the rate of $10 a ton, and the collecting, packing, and shipping expenses are excessive, the returns for the sales in Europe show a handsome profit.

Coal.—Two discoveries of large bodies of anthracite coal were reported, during the latter part of 1884, in northern Mexico. The accounts from these coal-beds are extraordinary, and if the experts who are going to examine them should find them as represented, the results on manufacturing in San Francisco and vicinity are expected to be very important.

Zapote-Wood.—It is asserted on eminent engineering authority that the best wood yet discovered for railway-ties is zapote, used for this purpose in Mexico. It is essentially a tropical timber, and is exceedingly durable for out-door or in-door work, above or below ground. Samples of this wood, taken out of buildings said to have been erected more than two centuries ago, did not show the slightest indications of decay. This wood is nearly as dark as logwood. It is very heavy, and sinks in water, and so hard that the boring of the holes for the spikes and forming the grooves for the rails is very laborious work. It appears to be almost impervious to decay, but has a tendency to split if exposed to the heat of a tropical sun for a few months; for this reason the zapote ties have to be kept covered with ballast.

Need of a Paper-Mill.—A premium of $30,000 has been offered by the Mexican Government to any one who will establish in that country a paper-mill at a cost of $150,000. The Government will also concede a right to all cactus-plants on the State lands. There are very few such manufactures in the country, and none at all on the Pacific coast. Nearly all the paper used in Mexico is imported from Europe (Germany in particular), except cigarette-paper and coarse wrapping-paper, which is made in Guadalajara. The raw materials, in the shape of the natural fiber of the banana, the cacao, and the maguey, are very plentiful, and rags and cotton waste are cheap and near at hand. State governments also promise aid to those willing to go into the business of paper-making, declaring that they will release the property from all taxation for ten years.

Replanting of Trees. — A contract was concluded in 1884 by the Mexican Government with Oscar Droege, of Tampico, to plant 2,000,000 trees in the valley of Mexico within four years. The trees specified are chiefly ash, poplar, acacia, and mountain cedar, with a sufficient margin for miscellaneous kinds, according to special conditions of site and climate, and the arrangements contemplate the formation of national nurseries in which scientific forestry may be pursued on a footing in some degree commensurate with its importance.

Peat.—The peat of Mexico was used in 1884 on a considerable scale as fuel for locomotives, stationary engines, smelting purposes, smiths' fires, and household use. The peat is mixed with bitumen, and is said not only to burn freely, and without smoke in much quantity, but to give a higher dynamic equivalent of heat than the same amount of wood.

Pearl-Fishing.—In February, 1884, the Mexican Government granted to a native company a concession, for sixteen years, to fish for pearls from Cape St. Lucas to Colorado river. This concession was transferred in July to a San Francisco company. They pay a royalty of $10 a ton on pearl-shells for three years, and $15 for the remainder of the time. From pearls alone the revenue is estimated at $250,000 per annum, and from shells at $150,000. One pearl obtained in December, 1884, is worth $17,000.

A Large Ranch.—An enormous ranch in Mexico was purchased in 1884 for £200,000 by a syndicate of English and Scotch speculators, of whom Lord Tweedmouth is one. It extends over 1,600 square miles.

Contracts for Arms.—In February, 1884, the

Remington Arms Company, of Ilion, N. Y., closed a contract with the Mexican Government for 25,000 Lee magazine rifles, and 15,000 carbines of the same manufacture.

Mission Work.—The Rev. J. Milton Greene, who went to Mexico as a missionary in 1881, says:

> The dominant religion is Catholicism, with a strange mixture of the old Aztec rites. In their processions the natives ornament themselves with feathers, paint their faces, and dance around images. We began missionary work in Mexico twelve years ago, and the results of our labors, considering the time and money expended, have been more gratifying than from any other of our missions in the world. We have established 56 churches, with a regular attendance of 10,000; 17 Sunday-schools, attendance, 933; 12 day-schools, attendance, 465; a girls' normal college with 20 pupils, and a theological seminary with 9 students. All our work is carried on in Spanish. Of the prominent political parties I found the Clericals stopping the wheels of progress, while the Liberals showed a disposition to imitate American push. The Mexicans show great intelligence, and are anxious to learn.

MICHIGAN. State Government.—The following were the State officers during the year: Governor, Josiah W. Begole, Greenbacker; Lieutenant-Governor, Moreau S. Crosby; Secretary of State, Harry A. Conant; Treasurer, Edward H. Butler; Auditor, William C. Stevens; Attorney-General, Jacob J. Van Riper; Superintendent of Public Instruction, Herschel R. Gass; Adjutant-General, John Robertson; Secretary of State Board of Agriculture, Robert G. Baird; Commissioner of the State Land-Office, Minor S. Newell; Insurance Commissioner, Eugene Pringle; Railroad Commissioner, William P. Innes; Commissioner of Immigration, H. N. Walker; Commissioner of Labor, John W. McGrath; Swamp-Land Commissioner, W. D. Fuller; Commissioner of Mineral Statistics, Charles E. Wright. Judiciary, Supreme Court: Chief-Justice, Thomas M. Cooley; Associate Justices, James V. Campbell, Thomas R. Sherwood, and John W. Champlin.

Finances.—The Treasurer's report for the fiscal year ending Sept. 30, 1884, shows:

Balance on hand at beginning of year	$1,074,267 20
Receipts	3,306,618 42
Total	$4,380,885 62
Payments	3,238,554 93
Balance in treasury	$1,142,330 69

The Treasurer purchased during the year sixty-three of the war bounty loan bonds of $1,000 each. These have been canceled, leaving the total indebtedness:

Past-due part-paid five-million-loan bonds, $21,000, adjustable at $578.57 per $1,000 (not bearing interest)	$12,149 97
War-bounty-loan bonds, 7 per cent., due in 1890.	284,000 00

The trust-fund debt, composed of balances upon which the State as trustee pays interest for educational purposes, now is:

Agricultural-College fund		$272,827 40
Normal-School fund		61,284 81
Primary-School fund (7 per cent.)	$3,124,810 60	
Primary-School fund (5 per cent.)	359,375 87	
		3,484,186 47
University fund		495,822 72
Aggregate balance of trust funds		$4,313,621 40

There are now forty banking associations under the general laws of the State. Seven were organized during the year; one discontinued business, and one is in the hands of a receiver.

The specific taxes charged on railroads in 1883 amounted to $655,483.49; received from life-insurance companies, $29,638.56; fire-insurance companies, $82,453.99; charged on copper-mining companies, $21,343.87 on 31,257 tons; iron-mining companies, $26,617.23 on 3,151,568 tons; coal-mining companies, $404.13 on 161,544 tons; amount distributed from primary-school interest fund to counties for 534,245 children, $763,975.85; assessed value of property, $810,000,000, as equalized by the State Board of Equalization in 1881; State taxes thereon, apportioned to the counties, Sept. 25, 1883, $1,474,672.26; liquor-tax receipts during 1882, spirituous, $786,972.88; malt, $131,670.09.

State Lands.—The whole number of acres of land held by the State, Sept. 30, 1883, was 1,053,111·21; number of acres forfeited to the State during the year, 1,695·28; total, 1,054,806·49; number of acres disposed of during the year, 214,185·535; number of acres held by the State, Sept. 30, 1884, 840,620·955. These are classified as follows:

Agricultural-College lands	125,372·759
Asset land	280·000
Asylum land	1,600·000
Detroit and Milwaukee Railroad land	4,965·965
Primary-School land	321,107·890
Salt-spring land	1,636·719
State-building land	40·000
Swamp-land	385,433·130
University land	196·490
Total	840,620·955

The sales during the year amounted to 214,185·535 acres, for $189,986.08. The receipts of the State Land-Office from sales, interest, etc., were $259,287.04.

State Institutions.—These include the University, Agricultural College, Normal School, State Public School at Coldwater, and Industrial School for Girls at Adrian (both for the reclamation of homeless and wayward girls), the Insane Asylums at Kalamazoo and Pontiac (both overcrowded), the uncompleted Insane Asylum at Traverse City, the Asylum for Insane Criminals (nearly completed), the Ionia House of Correction, the State Prison, the Institution for the Education of the Deaf and Dumb, the School for the Blind, and the State Reform School. The Governor recommends an amendment of the law governing the House of Correction, and says, "This prison is filled far beyond its capacity with convicts, nearly half of whom are sentenced by justices of the peace from different parts of the State, mostly for drunkenness."

State Census.—A State census was taken in June. In the following table is presented the total population of Michigan in the years 1884 and 1880. The table is complete except for the county of Isle Royal, from which no census returns for 1884 were received. The population of Isle Royal in 1880 was 55. The totals for 1884 are the results of the first count as shown by the schedules returned by the enumerators, and are subject to slight corrections:

COUNTIES.	1884.	1880.
Alcona	4,088	3,107
Allegan	38,668	37,815
Alpena	12,684	8,789
Antrim	8,762	5,237
Arenac	4,028	2,931
Baraga	3,089	1,804
Barry	24,104	25,317
Bay	51,224	35,150
Benzie	4,889	3,433
Berrien	37,784	*36,785
Branch	27,664	27,941
Calhoun	41,599	38,452
Cass	21,205	22,009
Charlevoix	9,276	5,115
Cheboygan	9,947	6,524
Chippewa	8,422	5,248
Clare	5,549	4,187
Clinton	27,136	28,100
Crawford	2,339	1,159
Delta	9,992	6,812
Eaton	31,909	31,225
Emmet	7,944	6,639
Genesee	38,782	39,220
Gladwin	1,589	1,127
Grand Traverse	12,092	8,422
Gratiot	25,058	21,936
Hillsdale	31,690	32,723
Houghton	26,091	22,473
Huron	24,520	20,089
Ingham	34,947	33,676
Ionia	32,579	33,872
Iosco	10,602	6,873
Isabella	16,018	12,159
Jackson	45,859	42,031
Kalamazoo	35,447	34,342
Kalkaska	4,499	2,937
Kent	84,765	73,253
Keweenaw	4,677	4,270
Lake	7,574	3,233
Lapeer	30,118	30,138
Leelanaw	7,180	6,253
Lenawee	49,324	48,343
Livingston	21,578	22,251
Mackinac	5,168	2,902
Macomb	31,330	31,627
Manistee	19,859	12,802
Manitou	873	1,334
Marquette	31,870	25,394
Mason	13,431	10,065
Mecosta	20,632	13,973
Menominee	19,129	11,987
Midland	8,784	6,893
Missaukee	3,338	1,553
Monroe	33,341	33,624
Montcalm	35,428	33,148
Montmorency	846	.....
Muskegon	37,631	26,586
Newaygo	19,055	14,688
Oakland	41,167	41,537
Oceana	14,557	11,699
Ogemaw	3,641	1,914
Ontonagon	4,883	2,565
Osceola	13,989	10,777
Oscoda	1,376	467
Otsego	3,907	1,974
Ottawa	36,308	33,126
Presque Isle	4,067	3,113
Roscommon	2,610	1,459
Saginaw	74,303	59,095
Sanilac	29,623	26,341
Schoolcraft	3,658	1,575
Shiawassee	28,093	27,059
St. Clair	46,318	46,197
St. Joseph	26,299	26,626
Tuscola	30,777	25,738
Van Buren	30,446	30,807
Washtenaw	41,704	41,848
Wayne	189,343	166 444
Wexford	10,583	6,545
Totals	1,855,146	1,636,332

* As published in compendium of the Tenth U. S. Census, but 1,230 greater than the footing of township and city totals.

Salt.—The report of the State Salt Inspector shows that the salt product of Michigan for the year ending Nov. 30, 1884, was 3,252,175 barrels—the largest in the history of salt-manufacture in the State.

Political.—There were three tickets in the field in 1884—Republican, Fusion (Democratic and Greenback), and Prohibition. For Presidential Electors, the Fusion extended to twelve of the number; for the thirteenth place, the Democrats and Greenbackers had separate candidates. The following were the State tickets:

OFFICE.	Republican.	Fusion.	Prohibition.
Governor	R. A. Alger.	*J. W. Begole.	D. Preston.
Lieut.-Gov.	A. Buttars.	†M. H. Maynard	A. Sherwood.
Secretary	H. A. Conant.	†W. Shakespeare.	Z. Chase.
Treasurer	E. H. Butler.	†James Blair.	A. B. Cheney.
Auditor	W. C. Stevens.	†G. P. Sanford.	O. E. Downing.
Att'y-Gen'l	M. Taggart.	*F. W. Cook.	J. H. Tatem.
Land Comm'r	M. S. Newell.	*J. H. Dennis.	W. W. Barcus.
Sup't Pub. In.	H. R. Gass.	*D. Parsons.	J. B. Steen.
Board of Ed.	J. M. Ballou.	†C. Vanderveen	I. W. McKeever

* Greenback. † Democrat.

At the election on November 4, the Republican ticket was successful. The following was the vote for Presidential Electors: Republican, 192,669; Fusion, 189,361; Prohibition, 18,403; imperfect and scattering, 5,790. The separate Democratic electors received 149,835 votes, and the separate Greenback electors, 41,490. The vote for Governor was as follows: Republican, 190,840; Fusion, 186,887; Prohibition, 22,207. Four Republican (Third, Fourth, Ninth, and Eleventh Districts) and seven Democratic Congressmen were elected. The Legislature of 1885 consists of 18 Republicans and 14 Fusionists in the Senate, and 52 Republicans and 48 Fusionists in the House.

The constitutional amendment relative to salaries of judges in the Upper Peninsula was ratified by a vote of 35,343 to 28,642; that relative to compensation of members of the Legislature was rejected by a vote of 52,707 to 31,698.

MICRO-ORGANISMS IN DISEASE. This is no new subject, but it has assumed greater importance during the past year. The study of micro-organisms had long been regarded, even by the medical profession, as barren of practical results, until the recent discoveries of the tubercle and cholera bacillus opened their eyes to its possibilities. Koch, the foremost authority on the subject, says: "In no instance has it been proved that an infectious disease is due to a micro-organism, unless the micro-organism in question is present either in the blood or tissues of the animal affected with the disease, after death. The micro-organism must be capable of cultivation in some suitable media outside the body," he adds, "and after being cultivated for several generations, must cause the same disease when introduced into the body of a healthy animal. Finally, in the body of this last animal, the same parasites should be found as in the former case."

Without entering into the technical details of the subject, it may be said that no microscopic work requires such extreme care as the preparation and recognition of these minute organisms. When removed from the body they are transferred to certain "culture fluids" (generally meat-broth or gelatine), where they are kept alive and multiply at a temperature of from 86°–106° Fahr. Many precautions are taken to avoid contamination from contact with the air, the ordinary one being to keep the fluids in glass tubes, the ends of which are plugged with fine cotton or wool.

In order to detect such minute bodies in the midst of tissues, advantage is taken of their property of staining readily with various aniline dyes, which are not so easily held by the surrounding tissues. It is a common mistake to suppose that micro-organisms are easily seen; on the contrary, their detection requires a practiced eye and the use of high powers.

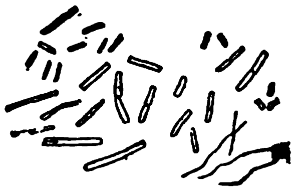
Micrococci.—These are small points or specks, which are seen in the midst of decomposing organic matter; in fact, their presence is indicative of decay, whether they are found within the dead or living body.

There are a large number of different species, which have received certain distinctive names, such as the "septic" micrococci, or those that are associated with blood-poisoning; the "zymogenic," which give rise to certain chemical changes (as in the decomposition of urine), the "pathogenic," which are regarded as the cause of diseases. The term "chromogenic" is applied to various colored forms. Micrococci are found in large numbers in abscesses—as the inflammation increases they are seen to invade the neighboring tissues; but, whether they stand in the relation of cause or effect to the inflammatory process, is not clear. They are found in the bowel in diarrhœa and typhoid fever, and in the air-cells of the lung in pneumonia.

FROM ULCER IN LARYNX OF A CHILD THAT DIED OF SCARLATINA.

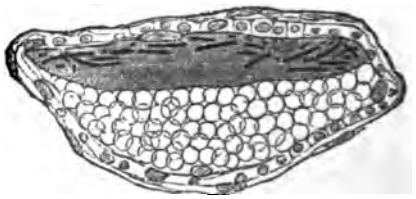
As so-called "specific" forms, may be mentioned the micrococci of small-pox, which are found in the eruptive vesicles, erysipelas, diphtheria, pneumonia, inflammation of the lining membrane of the heart, and scarlet fever. Each of these forms has certain peculiarities that distinguish it from the others, and is always found in certain locations, as in the sputum of pneumonia, the membrane of diphtheria, etc. With few exceptions, they respond to the test mentioned at the beginning of this article, and cause the same or a similar disease when introduced into the lower animals.

Bacteria.—These are small bodies whose length is several times their breadth. They have the power of locomotion. They occur in putrefying fluids, and have also received different names, according to their appearance or supposed action. Thus, one form is concerned in the souring of milk, another causes the fermentation of alcoholic fluids. But the most important varieties are those that are found in the blood of animals dying of septicæmia; according to the latest ideas, they are supposed to generate a poison that is absorbed into the system and gives rise to the symptoms of blood-poisoning.


BACTERIA.

Bacilli.—These derive their name from *bacillum*, a staff, because of their resemblance to small rods. They resemble bacteria, but are more slender. Like the former bodies, they may occur in long chains. Some bacilli have a peculiar tail, or flagellum, which is their organ of locomotion.

A peculiar property of these organisms is, that although they are killed by freezing or boiling, or by immersion in certain solutions, such as carbolic acid, thymol, and corrosive sublimate, their spores are far more resistant. This fact becomes important in considering the prevention of disease by destroying its germs. Not to mention the bacilli of septicæmia and typhoid fever, which are not regarded as having a specific character, the *Bacillus malariæ*, found by Klebs and Tommasi-Crudeli in the blood of malarious patients, and the bacillus of leprosy, special mention should be made of the bacilli of anthrax, or malignant pustule, discovered many years ago. These are long rods, which multiply by division, throwing off spores that develop into bacilli. These parasites may be cultivated outside the body, and introduced


SECTION OF SMALL INTESTINE OF A MOUSE DEAD OF SEPTICÆMIA.

into other animals. Animals thus inoculated generally die within forty-eight hours, and on microscopic examination the blood and spleen are found to be teeming with the bacilli.

HEART'S BLOOD OF A MOUSE DEAD OF ANTHRAX.

Bacillus Tuberculosis.—This form is found in the sputum of tuberculous patients, and also in deposits of tubercle, especially within the lungs. Their presence may be demonstrated even before the ordinary signs of phthisis have been detected, so that they may furnish a valuable means of diagnosis in early stages of the disease. The bacilli form spores within the body, and these spores seem to retain their virulence for some time after they are dried, which is an argument in favor of the possibility of consumption being communicated by the breath. These organisms can be readily cultivated in artificial media, and when an animal (especially a rabbit or Guinea-pig) is inoculated with fluid containing them, the characteristic disease is produced. The detection of the tubercle-bacillus by the microscope requires a good deal of careful manipulation, though the original methods of staining have been much simplified. The specific nature of the parasite is now almost universally admitted, although further experiments are necessary before the infectious character of tubercular phthisis can be regarded as established beyond a doubt (see TUBERCLE BACILLUS, in "Annual Cyclopædia" for 1883).

HUMAN TUBERCULOUS SPUTUM.

Comma-Bacillus.—Under this name is understood the micro-organism of cholera, the latest addition to the parasitic forms found in disease. As described by Koch, the cholera-bacillus is a small, curved body, bearing a striking resemblance to the punctuation-mark from which it derives its name. Its peculiar shape, as well as the conditions under which it is found, readily distinguishes it from all other parasitic organisms. It is smaller, shorter, and thicker than the tubercle-bacillus (for an account of its discovery, etc., see CHOLERA, page 143). These bodies are found in great numbers in the dejections and intestinal canal of cholera-patients. The method of examining them, as described by the discoverer, is similar to that which is used in the case of the tubercle-bacillus. A drop of mucus from the intestines or choleraic stools is spread out on an object-glass, the glass drawn several times through the flame of a spirit-lamp, or Bunsen's burner, and a watery solution of fuchsine is added. After a few seconds, the stained specimen is examined with a high power of the microscope (one twelfth of an inch, oil system, with Abbé's condenser), when the parasites are readily seen. The bacilli may be cultivated by placing a drop of the same mucus in food-gelatine, which has a weak alkaline reaction. The liquid gelatine is then poured upon a glass plate, beneath which is some pounded ice, and the gelatine soon freezes; the plate is then put under a glass receiver, where it is kept moist until the bacteria develop. Milk also is a good culture-fluid. They flourish best at a temperature between 86° and 104° Fahr.; they cease to grow below 67° F. If exposed to a frost, they are temporarily disabled, but can be revived even after an hour's interval. Under the microscope the bacilli present an animated picture, moving in all directions across the field, "like swarms of dancing midges," as Koch expresses it.

A DROP OF MEAT-BROTH, WITH PURE CULTURE OF COMMA-BACILLI.

The cholera-germs cease to grow when air is removed, or after they have been dried for about three hours. They grow, but with difficulty, in fluids having an acid reaction. Certain substances kill the bacilli, such as strong solutions of iodine, sulphate of iron, or copperas (2-per-cent. solution), carbolic acid, 1 to 400; oil of peppermint, 1 to 2,000; sulphate of copper, 1 to 2,500; quinine, 1 to 500; corrosive sublimate, 1 to 100,000. It might be inferred that nothing would be easier than to kill the parasites within the human intestine by administering such drugs as are known to exercise a germicidal action; but practically this is impossible, since the solutions would be necessarily so strong that they would be fatal to the patient. The non-professional reader can form little idea of the interest that has been awakened by the discovery of the comma-bacillus. It now forms the chief subject of study in the leading European laboratories, and new developments with regard to it are expected daily.

Vibriones.—These are long, wavy rods, and are found principally in putrefying fluids.

Spirilla.—These are minute spiral bodies, which are found especially in the blood of patients suffering from relapsing fever. They are observed during the paroxysms of fever, but disappear during the non-febrile stages.

SPIRILLUM TENUE.

Fungi.—The most important of these is the "yeast-fungus," or *oidium albicans*, found in the "thrush" of infants.

The question will occur to the reader, "What is the origin of these micro-organisms, and how do they get into the body?" Doubtless most of them come from the outer world, and are absorbed through the skin, by the alimentary tract, and by the respiratory organs. Having reached a favorable soil within the body, they settle there and multiply. Recent careful experiments have demonstrated the absence of micro-organisms from the *healthy* blood and tissues. At the same time it is well known that many of these bodies exist within the human intestine, so that Klein suggests that in certain conditions of the body they may be able to migrate into distant organs. "It can not be maintained," he says, "that if in any focus of disintegration micro-organisms make their appearance, they are derived from those normally present; we must, on the contrary, believe that putrefactive organisms can be imported into parts connected with the outer world from distant localities, in which disorganization of tissues has taken place." As regards "specific" organisms, or those that may be positively asserted to be the cause of certain diseases, we can only mention those of anthrax, tuberculosis, and erysipelas (also of swine-plague), as satisfying the tests previously mentioned. The arguments in favor of their specific nature are: An animal suffering from any of these diseases is always found to contain the same kind of organisms. These organisms, when artificially cultivated and introduced into other animals, produce the same disease. The period between the time of introduction of the organism into the body, and the appearance of definite symptoms, corresponds closely to the known period of incubation of the disease. This period varies from a few hours to two weeks. Moreover, if only a few of these bodies are introduced, they go on multiplying to an indefinite extent.

In reply to the query as to whether the micro-organisms themselves are the essential virus of an infectious disease, or in some way generate this virus, two theories are suggested. Either certain chemical changes may be brought about in the tissues by the presence of these bodies, just as in alcoholic fermentation; or the parasites themselves may furnish a poison, which sets up disease. A great deal has been written about antiseptics, and several substances enjoy high favor because of their supposed destructive power over disease-germs. In the language of experimental pathology, an antiseptic is "a substance inimical to the life of the micro-organism." According to Kleine, loose statements have been made as to the germicidal power of many drugs. "In order to test the value of an antiseptic," he says, "we must first put the micro-organisms into it, and then take them out and place them in a nourishing medium, and see if they will grow." When this method is adopted, it will be found that some forms, and especially their spores, are not destroyed by very strong solutions; moreover, some varieties of bacteria are killed by substances that have no effect upon others. Corrosive sublimate is the most powerful germicide, since spores are prevented from developing by a solution having a strength of only one part in three hundred thousand.

SACCHAROMYCES MYCODERMA.

While much remains that is at present involved in obscurity, it seems probable, from the earnest attention that is now being directed to the study of micro-organisms, that discoveries will be made in this field that will revolutionize all our previous ideas with regard to the origin and treatment of disease.

MICROSCOPY. Before discussing the progress recently made in the evolution of the compound microscope, in which the enlarged image, formed by one lens or system of lenses, called the objective, is viewed through another magnifying system called the ocular, it will be profitable to consider briefly the present condition of the simple microscope, in which a single amplification is produced by a simple lens, or by a system acting as such.

Notwithstanding the growing use of low-power objectives in the study of large objects, or of large and serial sections, and the employment of objectives as erectors, giving a very low range of powers, and the introduction of excellent compound binocular dissecting microscopes, the simple microscope is still indispensable in both field and laboratory work.

The Simple Microscope.—For the low powers of the simple microscope, non-achromatic lenses are still employed; and by some makers they are so mounted as to be used either singly or in pairs. A useful special form, whose trumpet-shaped tube furnishes an efficient shade to protect the eye from extraneous light, is the "watch-maker's glass," which, of various powers and with one or two lenses, is always attainable, and is often mounted upon an extemporized stand by those fond of amateur arrangements, or is added to an existing simple microscope to increase the range of its outfit.

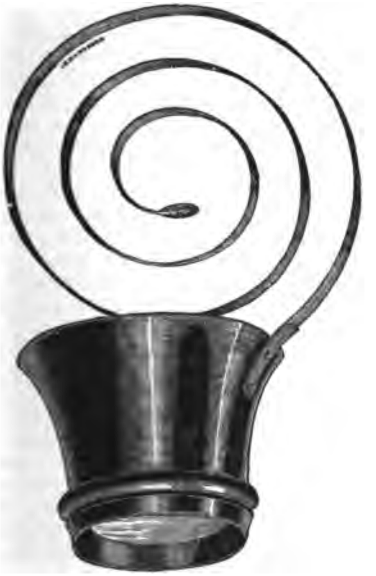


FIG. 1.—WATCH-MAKER'S GLASS, WITH SPRING HOLDER.

In the dissecting microscope of C. Vérick, of Paris, an identical arrangement is adopted for the regular supply of lenses.* For very low powers, however, the "engraver's glass," a doublet of great size mounted in hard rubber, is preferable. It has long been used by a few microscopists, for such work in the selection, study, manipulation, or dissection of objects as can be carried on under a very low amplifying power; but the merits of its broad field, clear definition, and ease to the eyes, are only now becoming generally realized. It requires a large, heavy stand, like the "lens-holder," Fig. 8, which was not easily available hitherto, but is now made for the purpose. For higher powers, as from one to one fourth inch, the Coddington is still the best of cheap and non-achromatic magnifiers, and is supplied on dissecting or, as better named on the Continent, preparing microscopes. The small non-achromatic doublets and triplets, formerly important, and planned with great care, are now wholly superseded in their field by achromatic combinations.

A few simple microscopes are arranged to use medium and low-power achromatic objectives from the compound microscope, which, notwithstanding the excellence of their corrections, and the advantage of being always at hand, are only tolerably convenient for the purpose.

The "globe lens" of Gundlach is an achromatic Coddington, being a sphere of crown-glass, balsam-cemented into the center of a hollow sphere of flint-glass, reduced to a cylindrical form, as in the plain Coddington, by cutting away the unused peripheral portion. Being achromatic, the blackened diaphragm groove is not required. This arrangement secures, in addition to the well-known advantages of the Coddington, a clear and brilliant definition at the center of the rather limited field.

By other makers solid three-lens achromatic magnifiers are produced, under the names of "aplanatic loupes," "platyscopic lenses," or "achromatic triplets." These were early brought into service in America by Tolles and Zentmayer; the most common form, perhaps, consisting of a thick lens of crown-glass like a shortened Coddington, achromatized by a thin concavo-convex meniscus of flint-glass at each end. These triplets, usually mounted as shown in Fig. 2, give an exquisite definition, a broad and well-lighted field, and a long working focus; and they may be considered a necessity rather than a luxury, where fine work is to be done, and for any use when extreme economy is not imperative.

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* The ordinary watch-maker's glass, if used without a stand, and supported by catching its flaring tube in the recess of the eye, becomes tiresome and disagreeable in prolonged use. The form shown in Fig. 1, however, which was introduced in 1880 by the Bausch & Lomb Optical Co., and which is automatically supported by a steel spring passing around the observer's head, may be worn with comfort, and seems to be the most practical magnifier which, for its focusing, depends upon the steadiness of the head. It can readily be raised out of the way, and rested upon the forehead during occasional use of the eyes for ordinary vision; and when again required it can be instantly restored to position over the eye by a touch of the hand. It is likely to prove more available as a dissecting microscope than the magnifiers heretofore mounted in spectacle-frames for similar purposes.

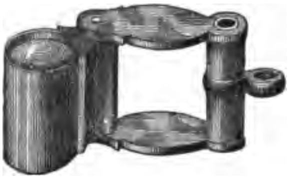

FIG. 2.—ACHROMATIC TRIPLET, MOUNTED.

The Brücke magnifier, a Galilean microscope, consisting of a small two-system achromatic objective, with a concave eye-lens above acting as an ocular, has long been used on the Continent, but has only lately received deserved recognition in America. Its long working focus, good definition, considerable power, small size, and moderate cost, commend it for the preparing microscope, notwithstanding its small field and rather deficient illumination. Some simple microscopes are supplied, as an extra, with a compound body and ordinary ocular for high-power dissections, or for occasional examination of objects. Few preparing microscopes are large and firm enough to employ such an arrangement to real advantage; but the Bausch & Lomb Optical Co. have just introduced for the same purpose a little compound body, shown *in situ* in Fig. 4, only three inches long and three fourths of an inch wide, containing a diminutive objective, erector, and ocular, which is light enough for the preparing microscope, and capable of giving, by draw-tube adjustment, a range of powers of from 12 to 150 diameters, with a working focus varying inversely from 1⅛ to ¼ inch. This arrangement is somewhat equivalent to the Brücke magnifier, giving similar working focus and width of field with the same powers. It has the advantage of supplying, by mere sliding of its draw-tube, such a range of powers as, with the other magnifier, could only be attained by changing or dividing the objective.

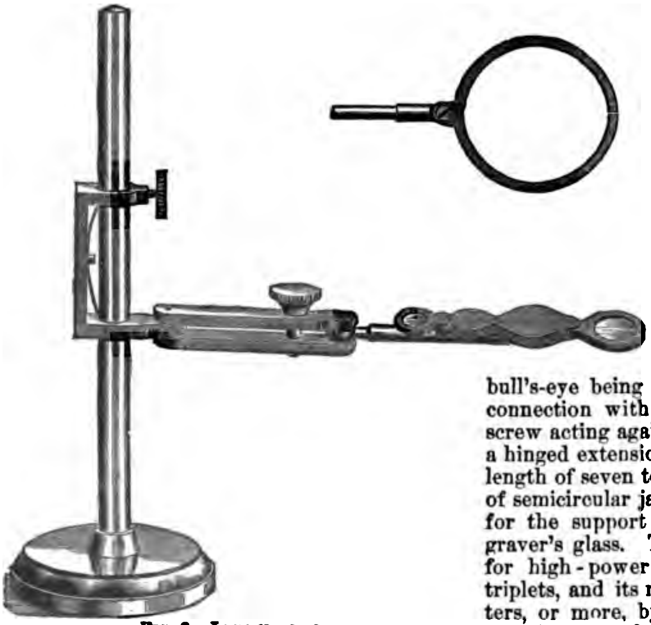

FIG. 3.—LENS-HOLDER

As a lens-holder, to support simple lenses, like the pocket arrangement shown in Fig. 2, for instance, while objects are being dissected or arranged, some recent books recommend a bent wire passed through a cork, which in turn slides up and down upon a larger vertical wire stuck into a block or spool upon the table; and it must be admitted that such a home-made affair is about as efficient, though not as pleasing to the taste, as the neater stands sold everywhere for the same purpose. One of the simplest of the latter is the Lister stand, originally made by Smith & Beck, and lately elaborated into the "Hampden" microscope, by the present firm at the suggestion of a distinguished amateur-microscopist ("J. R. M. S.," 1882, p. 258). Many varieties are made, especially by the French and German opticians, having a rack-adjustment for the height of the lenses. To gain a greater range of applicability, the writer has devised and used the stand shown in Fig. 3 ("Proc. A. S. M.," 1884, p. 164). It is based upon the model used by engravers, but, unlike that, it is sufficiently firm and manageable for either high or low powers, used either near the stand, or at a sufficient distance for the examination of mounted herbarium specimens, or of hand-writing upon large papers or books. It consists of a rectangular frame, sliding upon the pillar of a bull's-eye stand (the bull's-eye being often advantageously used in connection with it), with a fine-adjustment screw acting against the pillar above, and with a hinged extension below, giving a total arm-length of seven to nine inches. There is a pair of semicircular jaws to be inserted into the arm for the support of a watch-maker's or engraver's glass. This stand is equally available for high-power Coddingtons or achromatic triplets, and its range is raised to 100 diameters, or more, by adapting to it the Brücke magnifier, or the Bausch & Lomb compound dissecting arrangement. The axis of vision may be set with equal steadiness at any angle from vertical to horizontal, the instrument thus becoming sometimes an efficient aquarium microscope.

Of complete stands for the simple microscope, the Continental type seems to be the heavy compact stand, with small square stage supplied with side-wings as hand-rests; and with a reaction, lately, to the opposite extreme of large wooden stands, of which the supports for the hands constitute the largest part, as in the instrument of Waechter ("J. R. M. S.," 1882, p. 677), Vérick ("J. R. M. S.," 1881, p. 659), and Seibert & Krafft (Carpenter, p. 54). Wooden models have been likewise introduced into England by Mr. W. Teasdale ("J. R. M. S.," 1882, p. 549), Prof. Huxley (Carpenter, p. 56), and others. They have not as yet become Americanized, though possessing manifest advantages that render them certain to be used when better known.* In America a square base and stage with side-wings is adopted by one large maker, in the "compact" dissecting microscope (see Fig. 4); but the prevailing type of the best stands seems to be rather larger, with round base and heavy pillar, like those of Mr. Joseph Zentmayer, of Philadelphia (Fig. 5), and of Messrs. R. and J. Beck, of London and Philadelphia.

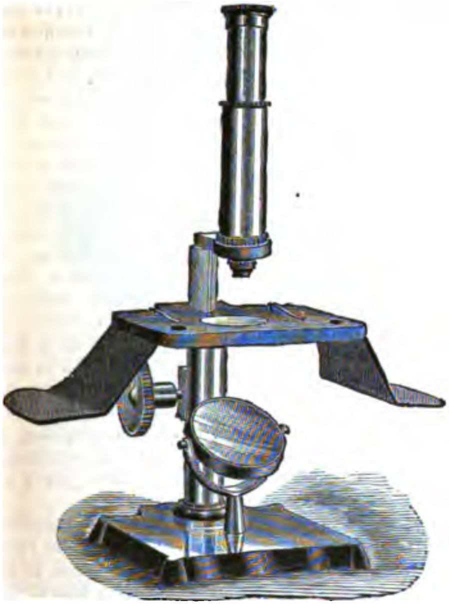
FIG. 4.—COMPACT DISSECTING MICROSCOPE, WITH HAND-RESTS AND ERECTING COMPOUND BODY.

For such stands, however large, hand-rests add greatly to the steadiness as well as the comfort of the hands, and they are far more satisfactory when large, and supported independently, than when attached to the stage. The form described by the writer (Behrens, Am. ed., p. 109) is shown at one fourth natural size, open for use, in Fig. 6, and closed for portability in Fig. 7. It can be easily made for his own use, from mahogany or other hard wood, by any amateur having mechanical skill. The microscope (like Fig. 4 or Fig. 5, for instance) stands in the center, held in place by two wooden buttons, while its stage is somewhat above and not far from the upper ends of the inclined rests. When portability is not required, the rest is arranged permanently as in Fig. 7, being fastened together with glue and brads, instead of hinges and hooks.

The Stand.—Only lately has there been an American model of stand. Formerly it was sufficient to recognize the Continental model, small, compact, and portable, but of very limited capabilities for the reception of accessories—most of which accessories, by-the-way, the Continental microscopists wholly abjured; and the English model, large, elaborate, and cumbersome, with a sumptuous outfit of ingenious accessories. The English model was chiefly in favor in America, whether imported from abroad or imitated by our own manufacturers. Within a few years past, however, a really new model has been developed, chiefly through the influence of American innovations,

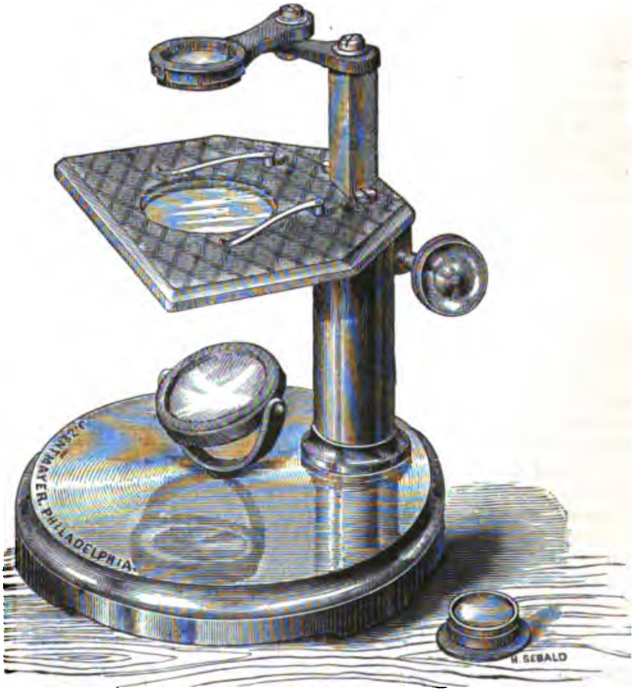

FIG. 5.—DISSECTING MICROSCOPE.

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* The credit for originating this style of stand seems to belong to Mr. H. J. Slack (Quekett, "The Microscope," 1855, p. 66).

which may be fairly considered as representative of American judgment and ingenuity. These stands are mostly made of medium size, the peculiarities of their mechanism enabling them thus to combine nearly all the simplicity and portability of the Continental stands, with nearly all the efficiency and scope of adaptations of the more ambitious English instruments. The "Histological" stand of Mr. William H. Bulloch, of Chicago (see Fig. 8), may serve as an example of this type of stand in a very simple and inexpensive form, yet efficient for a great variety of scientific work. On the other hand, the "Universal" stand of the Bausch & Lomb Optical Co., may be specified as a type of somewhat larger and more elaborate stands, able to use all accessories, and serviceable for all general purposes (excluding specialties having extraordinary requirements) of microscopical research. (The general arrangement of this stand is shown in the cut of one, Fig. 30, bearing an electric illuminator in place of the mirror; while its details of construction are nearly like the corresponding portions in the "arc" stand, Fig. 12.) Somewhat equivalent to these stands are numerous instruments by nearly all American and many English makers. A critical study of the points which such stands have in common will reveal the principal improvements in stands during the last half-dozen years.

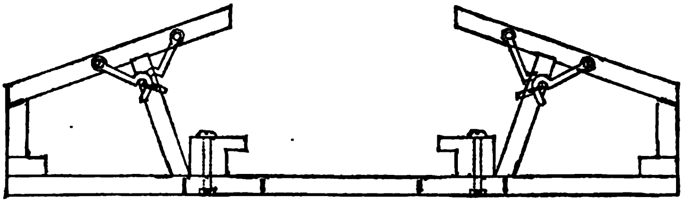

FIG. 6.—HAND-REST, OPEN.

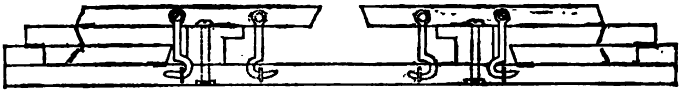

FIG. 7.—HAND-REST, CLOSED.

The body is broad enough to hold oculars giving a liberal width of field with the lower powers; 1·25 inch being the standard diameter of the American Society of Microscopists, and 1·35 the largest standard of the Royal Microscopical Society. Many of these stands are made at or near one of these sizes; and it is to be greatly desired and reasonably hoped that complete correspondence will be shortly accomplished, so that a single adapter will make the oculars of all interchangeable. The nose-piece at the bottom screws out, leaving the "Butterfield" broad-gauge screw (one and one fourth inch), for those uses for which the "Society" screw is unavailable. The body is also short, about five or six inches, for comfort when using it in a vertical position on the laboratory-table; this peculiarity fitting it also to adopt the Abbe binocular ocular. A draw-tube (sometimes there are two) furnishes the varying length of body required in micrometry, or the standard length for ordinary use.* The graduations of the draw-tube should be numbered not from zero, but from the minimum length of the body, so that the reading at any point of draw-tube extension will give directly the total length of body in use at the time. The draw-tube is furnished at its lower end with a "Society" screw adapter, which often serves a good purpose as a diaphragm, and can be employed on occasion to carry an objective as erector, an amplifier, a polariscope analyzer, a set of spectroscope prisms, or an objective of too low power to be focused in the ordinary way.

The limb connecting the body with the pillar is of the Jackson model, supporting the body steadily by means of the rack attached to its posterior surface. Ten years ago this model was already adopted by all the prominent American makers, except one who made only stands of the Continental type, though the Ross style, with a transverse bar supporting the body only at its lower end, was still extensively, if not most commonly, preferred in England. This style, though confessedly inferior in other respects to the Jackson, was long retained from the great superiority of its fine adjustment to that then used with the rival model; but the faulty adjustment having been superseded, the Ross bar has at last been abandoned even by the distinguished firm which gave it a name, and whose fine workmanship and large influence greatly prolonged its use; and it may, therefore, now be considered obsolete except for special purposes.

The coarse adjustment is by a rack whose pinion is located high up upon the limb, to give enlarged range for low powers. The movement is upon plane surfaces back of the body, the racking of the round body through a hollow cylinder having been abandoned in all good work on account of its imperfect action.* Substitutes for the rack (such as a chain movement, a coarse screw geared with toothed wheels to the large milled heads, a diagonal slot, or side-bars with crank-pin attachments) have been abandoned or confined to individual makers; though sliding the body by hand within an outer tube is retained in the cheaper stands as a simple arrangement, less convenient, though not, in skillful hands, less precise than the rack itself.

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* Ten inches is still called the standard length of body, though rather vaguely or approximately, since no one has undertaken to say where the measurements should begin and end. Perhaps they are most commonly made from the top of the draw-tube to the bottom of the objective. As the focal plane from which the "optical tube-length," as it is well termed by Prof. Abbe, should be measured, is always above the front lens of the objective, and often above the back lens ("J. R. M. S.," 1888, p. 816; "Proc. A. S. M.," 1884, p. 183), and as large stands do not ordinarily give ten inches from that plane to the corresponding plane of the ocular, it is evident that the powers resulting from various combinations of objectives and oculars must be, as they practically are, less than their theoretical value, computed on the assumption of ten-inch tube, unless either objectives or oculars or both be specially named, so as to make good the practical deficiency of distance between them. Prof. Abbe's cut, however, seems to do more than represent the practical difficulties of the case; as the positive ocular figured, but rarely used in the microscope, has its focal plane wholly below it, and far from any convenient location of the top of the draw-tube; while the negative ocular, far more commonly used, has its plane at the level of the diaphragm between its lenses, and can be easily and conveniently arranged, as it already is by some makers, to slip into the tube just to that plane (see "Nomenclature of Oculars," *infra*, p. 512).

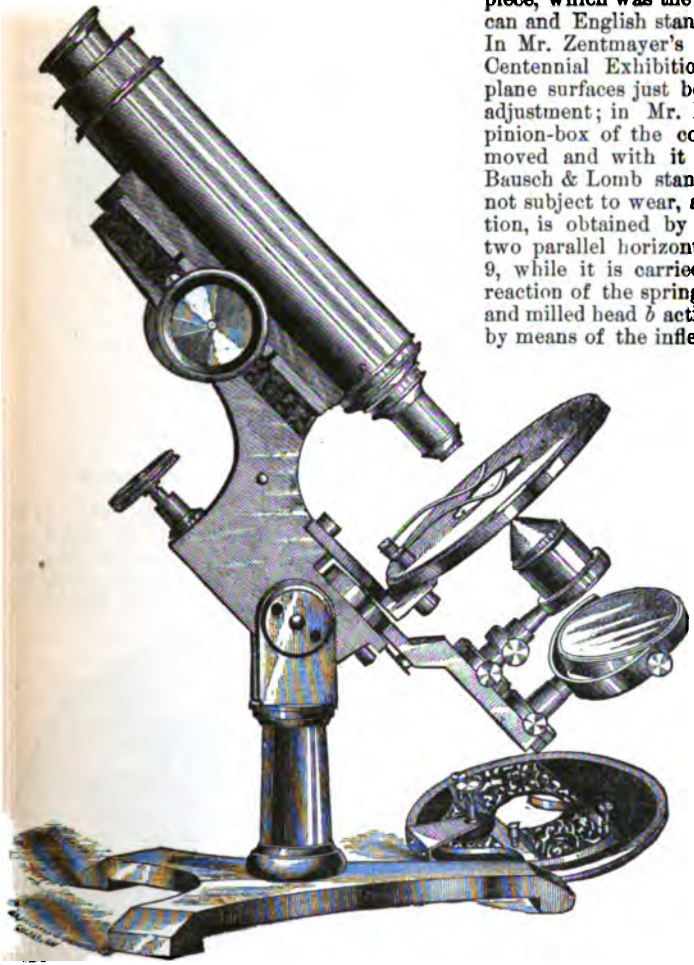

FIG. 8.—HISTOLOGICAL STAND; OF THE AMERICAN TYPE.

The fine adjustment is by means of a screw at the back of the limb, moving the whole body, usually by means of an intervening lever. This arrangement is now practically universal, having replaced the screw with short lever in front of the body acting upon a movable nose-piece, which was the prevalent form in American and English stands only a few years ago. In Mr. Zentmayer's model, introduced at the Centennial Exhibition, the motion is upon plane surfaces just behind those of the coarse adjustment; in Mr. Bulloch's best model the pinion-box of the coarse adjustment itself is moved and with it the whole body; in the Bausch & Lomb stands a frictionless motion, not subject to wear, and incapable of lost motion, is obtained by supporting the body by two parallel horizontal steel springs *a a*, Fig. 9, while it is carried downward against the reaction of the springs by means of the screw and milled head *b* acting upon the pinion-box *f* by means of the inflexible bar *e*;* while Mr. E. Gundlach adopts the differential screw as a means of securing a slow or rapid motion at will. In a recent ingenious adjustment by Swift & Son, of London, the focusing screw is placed at the side of the limb, and raises the objective by a wedge movement, as shown in Fig. 10; the arrangement being given any required degree of delicacy by varying the pitch of the wedge.

The ***stage*** is round, thin, and concentric to the optical axis of the instrument. This style, introduced mainly through the influence of the late R. B. Tolles, of Boston, is now generally recognized and imitated as a material improvement on other forms. A plain circular plate, as used in Fig. 8, becomes the basis for a movable upper plate, with or without a sliding object-carrier, forming an excellent revolving stage as shown (with object-carrier) lying at foot of same stand, and (with plain spring clips) *in situ* on the "arc" stand, or for an elaborate mechanical stage with pinions both on one axis, and with its mechanism wholly within the limits of the circle so as to admit complete rotation, as devised by Mr. Tolles, and adopted with more or less changes by Mr. Bulloch, in his "Congress" stand, by Ross & Co., in the Wenham "Radial" stand (see Fig. 11), ("A. M. M. J.," 1883, p. 146), by Watson & Sons, in their inclining stand ("J. R. M. S.," 1881, pp. 800, 516), and by other makers. Lately a sliding fork, holding the object-slide in place, has been proposed as a substitute for the sliding object-carrier; thus thinning the stage by dispensing with one plate, and allowing the object-slide to lie upon the bed-plate of the stage. The stages are sometimes made reversible, to carry the slide below for extreme obliquity of illumination, or are furnished with additional spring clips below for the same purpose, the rotating clips in Wale's "working" stand being also reversible and capable of holding a slide in any azimuth either above or below the stage. An additional inverted stage with clips has also been made, to slip upward into the regular stage-opening ("Amer. Jour. of Mic.," 1879, p. 92); but such devices are seldom required with present thickness of stage (about ¼ inch, permitting incidence of light up to 70° or 80°) and present means of immersion illumination. The rack for rotating the stage is mostly abandoned, as all precision usually required can be attained more promptly by hand; but the circumference is graduated, in the better stands, to indicate the extent of rotation. The stage is set just high enough to admit the adaptation of the sub-stage apparatus of the large English stands, which apparatus is not attached to the stage, but supported upon a ring or sub-stage below.

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* A diagonal rack and spiral pinion is thought to give a smoother movement, on account of its greater surface of contact and longer hold. It was applied to the microscope as long ago as the time of Pritchard, and is now revived by Ross and Swift, of London; the latter making it sometimes double or treble, at the suggestion of Mr. J. Mayall, with the teeth of each part set out of line with the other, in order to give the smoothness of a fine with the strength of a coarse pitch ("J. R. M. S.," 1884, p. 958).

* This adjustment has since been adopted by Mr. Henry Crouch, of London. In the German stands of Seibert & Krafft a somewhat similar motion is attained by means of hinged, parallel, horizontal bars.

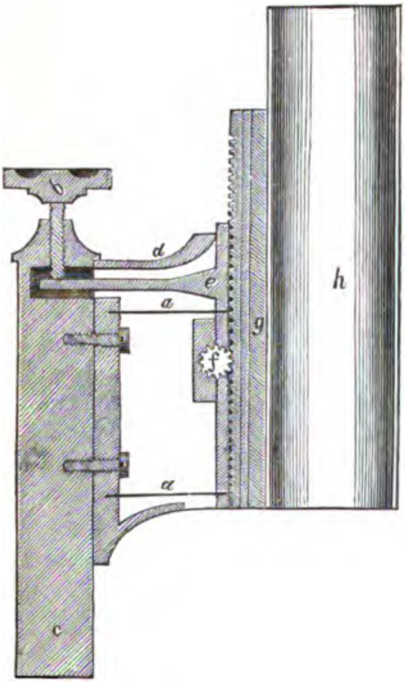

FIG. 9.—CLOCK-SPRING FINE ADJUSTMENT.

The mirror is supported upon a radial bar or swinging tail-piece hinged in the plane of the object on the stage. It therefore swings radially to the object on the stage, which is in the optical center of the instrument; and it can thereby be placed with the greatest ease and precision at any angle from the axis, either below or above the stage, without altering its distance from the object, the extent of swing being indicated, except in the cheapest form, upon a graduated circle. The distance of mir-

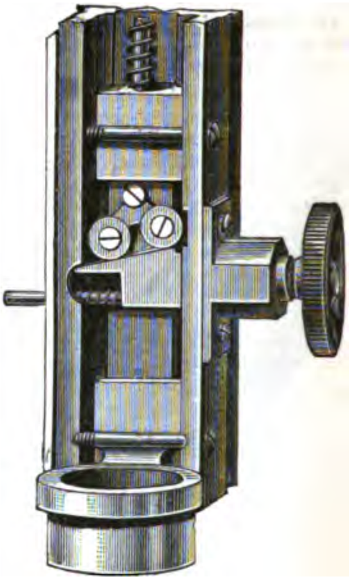

FIG. 10.—WEDGE FINE ADJUSTMENT.

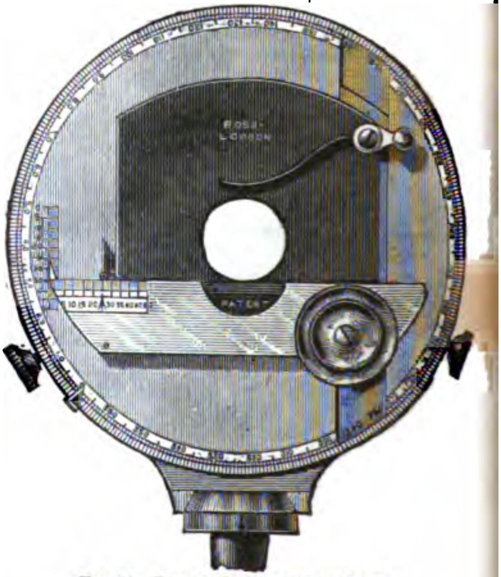

FIG. 11.—ROUND STAGE; MECHANICAL.

ror from the object is adjustable by sliding directly toward or from it. For simple stands where the sub-stage is wanting or comparatively unimportant, one tail-piece is used, as in Fig. 8; but for stands of higher grade a second bar, swinging independently, as in Fig. 12, is essential to the usefulness of the system; since the sub-stage often requires to be retained in an axial position, while the mirror-bar is oblique. So imperative is this that some competent authorities, having in view the single bar, have even expressed a doubt as to its utility upon the higher grade of stands. The swinging tail-piece, anticipated in principle by Mr. Thomas Grubb's sectional arc in Dublin, in 1853, and by the Thury-Nachet traverse sub-stage in Paris in 1855, and by Dr. Royston-Pigott's circular arc in London in 1862, and by Mr. Tolles's radial arm in Boston in 1871, and by Mr. Bulloch's sectoral arc in Chicago in 1878 ("J. R. M. S.," 1880, p. 1058), was first successfully introduced by Messrs. Joseph Zentmayer and E. Gundlach, at the United States Centennial Exhibition. It is now adopted by nearly all American and by several of the leading English makers, and also in Dr. Pelletan's "Continental" microscope. Mr. H. P. Aylward swings the tail-piece, not from the pillar back of the stage, but from a horizontal bar projecting from a rotating collar let into the stage-opening, by turning which it can be set at any azimuth and swung around the object in other directions as well as laterally ("J. R. M. S.," 1884, p. 110). In very meager stands some of the advantages of the swinging tail-piece may be secured, as proposed by Mr. James Mackenzie, by screwing or clamping to the edge of the stage a similar device, made in a detachable form, carrying a mirror and a one or two inch condensing lens ("J. R. M. S.," 1881, p. 826).

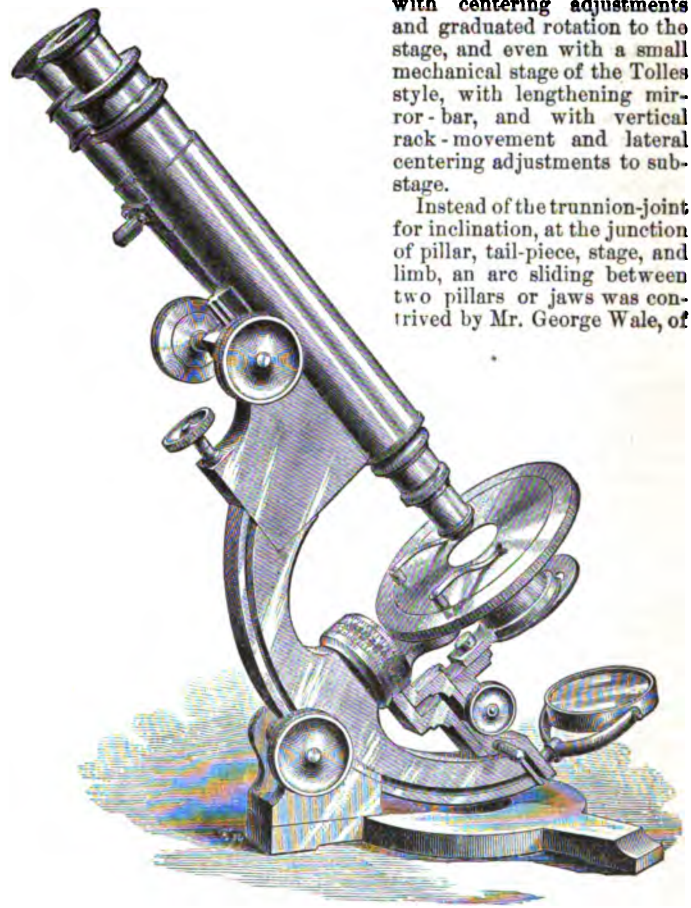

Fig. 12.—Arc Stand; a Variety of the American Type.

The foot has three widely separate points of support, a projecting plug of soft rubber being inserted into the bottom of each branch for better contact with the table, and a single pillar, short and firm, arising to the center of the trunnion-joint back of the stage, and admitting a free swing of the mirror-bar, whether the body be vertical or inclined.

None of the figures as drawn fully represent the highest development of instruments of this type and size; since the more complete stands named are sometimes made, to advantage, with graduated and indexed fine adjustment-wheel, with centering adjustments and graduated rotation to the stage, and even with a small mechanical stage of the Tolles style, with lengthening mirror-bar, and with vertical rack-movement and lateral centering adjustments to sub-stage.

Instead of the trunnion-joint for inclination, at the junction of pillar, tail-piece, stage, and limb, an arc sliding between two pillars or jaws was contrived by Mr. George Wale, of New Jersey, in 1880 (Carpenter, "The Microscope," p. 74), giving great steadiness, though with somewhat limited capabilities, and this arc microscope has since been copied and improved by L. Schrauer, of New York; by Ross, Watson, and Swift, of London; and, finally, by Bausch & Lomb, of Rochester, on the suggestion of Hon. J. D. Cox, of Cincinnati ("Proc. A. S. M.," 1883, p. 147), in their American concentric stand (see Fig. 12). These microscopes have come into use very suddenly, and are just now receiving a liberal trial in that practical work which has not yet fully decided their exact relative value among the accepted varieties of the modern microscope.

Of the vast number of portable, class, clinical, traveling, and pocket microscopes which the last few years have brought forth, a large proportion are either imitations or revivals of earlier and abandoned forms—the improvements made in their details, or the demands of the times, rendering serviceable now the models which were before rejected and forgotten.

The more or less real requirement of the times has led to the introduction, especially in Germany, of a class of trichina-microscopes, adapted for making a rapid search over a large field with a low power. The flesh to be examined is compressed between large, thick glass plates, which are so arranged as to be carried systematically beneath the lenses by a sliding or rotary motion—the whole device being either a portion of a special stand for the purpose, or else attachable to the stage of any stand. A very simple but serviceable "trichinoscope" is made in this country ("J. R. M. S.," 1880, p. 711; 1882, p. 258). Such arrangements are also useful when large quantities of vegetable or animal fibers, or hairs, commercial products, etc., are to be surveyed.

Under the demands of the practically new science of micropetrography, a class of lithological, petrological, or mineralogical microscopes has been suddenly developed, characterized by the completeness of the stage and polariscope arrangements. The stage, often mechanical, has a graduated rotation, a centering adjustment,* and in some cases an attachment with graduated arc, after Hartnack's model, for rotating the object vertically under the lenses for the sake of determining the separation of the optic axes of biaxial crystals, or for the measurements of angles by successively leveling, in the focus of the objective, the corresponding sides of the crystals. This rotation takes place in Mr. Bertrand's stand, in a glass-bottomed trough upon the stage, so that the measurements can be made in oil or other liquids as well as in air ("J. R. M. S.," 1883, p. 418). The fine adjustment is graduated and indexed for approximate measurements of thicknesses. The polarizing prism is large, mounted with centering adjustment and graduated rotation with spring-catch to indicate when the prisms are crossed, with fittings to carry above it a condensing lens of large aperture (another lens being screwed at the same time into the lower end of the draw-tube), and with a swinging movement by which it can be instantly turned into or out of the axis of vision. The analyzer has a graduated rotation, and is mounted over the ocular, or in a sliding box above the objective, or both. The ocular has a centering adjustment, a pair of cross-wires (illuminated from the side for use with a dark field) in the focus of the eye-lens, a graduated circle for goniometry, and an arrangement for placing a plate of calc-spar between the analyzer and the eye-lens, or in the focus of the latter, for stauroscopic measurements. In or near the nose-piece is a slit, or sliding box, or cranked arm, for introducing a Klein's quartz-plate into the field. No one stand, however, is known to include all the above-named features. Among those prominent in the introduction of such special stands may be mentioned Profs. Lasaulx and Rosenbusch, and Messrs. Fuess, Nachet, Sidle (of the "Acme" stands), Bulloch, Beck, Swift, and Zeiss (see "J. R. M. S.," 1882, p. 842).

The utility of the binocular microscope, which was strenuously denied by some not many years ago, can no longer be reasonably questioned. It is evidently most useful in general natural history, with low powers or moderate angles, and of less advantage, though not absolutely inapplicable, to investigations requiring only high powers or extreme angles. For small stands of the Continental type the Nachet form was first really successful, and is still preferred; while the Wenham form, which set the example of a direct transmission of light to one eye and a diverted transmission to the other, continues to be the standard binocular of English and American stands. One of its few serious disadvantages is the small size of prism heretofore admissible, and the accompanying limitation of the acting aperture of many objectives by the small opening possible in the prism-box of a nose-piece. This has been lately remedied by the contrivance of Edward Bausch, who abandoned the sliding prism-box altogether, and mounted a larger prism, *a*, in Fig. 13, on a swinging arm, *b*, inside of a nose-piece of sufficient capacity to allow it to be swung wholly out of the way, as shown by the dotted lines, leaving unobstructed the whole caliber of the "Society" screw, *d*. The prism-holder, *b*, is attached to a steel spindle, *c*, which is turned by a milled head outside. (This arrangement is shown *in situ* in the cut of "arc" stand, Fig. 12.)

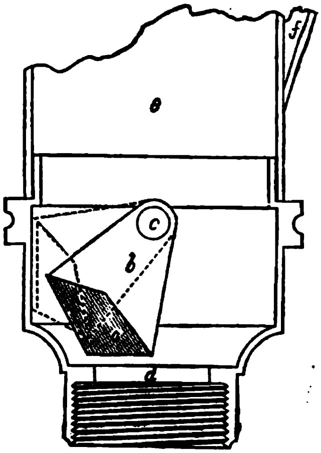

Fig. 13.—Bausch and Lomb Arrangement of Wenham Binocular.

Of the many ingenious binoculars proposed during the last few years, only two have come into considerable use. The first of these, by Mr. J. W. Stephenson, of London, is a reintroduction of a pair of reflecting prisms of the form adopted by Prof. J. L. Riddell, of New Orleans, the original inventor of the binocular microscope. These prisms, shown in Fig. 14, located close to the back lens of the objective, divide the pencil of light into two symmetrical halves, which are turned obliquely forward, the image being at the same time erected by a larger prism placed above at *d*. Being an erecting arrangement, and having the oculars inclined at the most convenient angle for vision when the stage is horizontal, this contrivance is well adapted, and it has proved satisfactory, for a dissecting or preparing microscope. A slight loss of definition in both fields, and the impossibility of using the same body as a monocular, has limited it to a narrower range of usefulness than that of the Wenham form. On the other hand, Prof. Abbe's binocular, introduced in 1880, is a removable ocular which is applicable to any stand. In it the beam of light is not laterally bisected, but enters a pair of prisms, *a*, *b* (Fig. 15), a portion of the whole pencil passing directly through to one ocular, at B, while the other portion is reflected from the surfaces between the prisms *a* and *b*, and from the second surface of the prism *b′* to the other eye, at B′. The intensity of the axial and reflected pencils is unequal, the image in the direct tube being much superior to the other, as in the Wenham form. It is subject, however, to the disadvantage, as compared with that, of such slight loss of definition as may be caused by the passing of the direct rays through the prisms *b*, *a*. The difference in size of the images, caused by the longer course of the reflected rays, is corrected by a corresponding difference in the construction of the oculars. The arrangement is not essentially stereoscopic, and may be used for the sake of the comfort of using both eyes at once, with the full capacity of both tubes, and with similar images in both eyes. A stereoscopic effect, however, is produced at will by placing over the oculars caps which obstruct the inner half of each tube, so that only the outer half of each pencil is utilized. The opening at B, in the figure, is concentric to the optical axis, as for non-stereoscopic vision, while that at B′ is shown with only the outer half in use, as for stereoscopic vision. A sliding adjustment for the distance between the two eyes is controlled by a milled head at D. This binocular is well adapted to the small Continental stands, being adjusted for a tube-length of 13–16 centimetres. With an adapter inserted in place of the lengthening draw-tube of the stand, it is equally applicable to short instruments of the American type It is not made of a size well adapted to large instruments with long tubes, as it would then become heavy and clumsy by reason of the large prisms required.

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* Sometimes a centering nose-piece is substituted for this: while, in M. Nachet's model, the stage and body are made to revolve together under the ocular, so that the centering is not disturbed by the rotation.

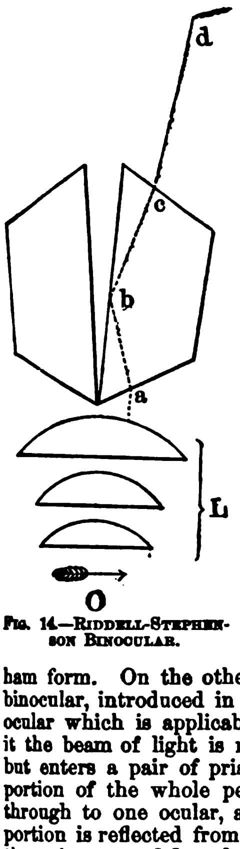

FIG. 14.—RIDDELL-STEPHENSON BINOCULAR.

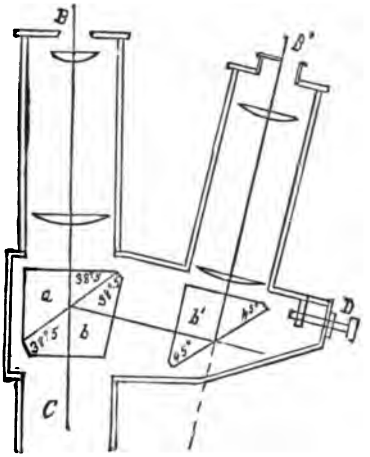

FIG. 15.—ABBE'S BINOCULAR OCULAR.

When the monocular stand is used, an eye-shade, so located as to prevent the formation of images in the open but unemployed eye, is of material advantage in lessening fatigue both of eye and brain. The clumsy devices formerly made for this purpose were soon abandoned. But lately practical and really useful substitutes have been devised by Dr. L. B. Hall, Mr. E. Pennock, and others. The last published form, devised by the writer and shown in Fig. 16 ("A. M. M. J." 1884, p. 83), is a screen of hard rubber or blackened metal about 1½ inch in diameter, with an extension in the form of a band crossing in front of the nose and encircling the top of the tube just below the ocular. Being attached to the body, this requires no new adjustment with each change of ocular. It is easily reversible, which often becomes desirable on account of the

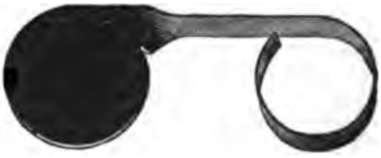

FIG. 16.—EYE-SHADE.

well-known expediency of equalizing the use of the eyes, by employing them alternately. It is located farther from the eye than are other shades, for the purpose of admitting considerable stray light, and thus diminishing the fatigue caused by continual efforts at adjustment of the eyes when one is darkly shaded and the other brightly illuminated; to accomplish which object more fully, some persons cover the black shade with white paper. For the same purpose, Mr. L. Wray, Jr., has proposed to substitute for black shades a translucent screen of white paper ("J. R. M. S.," 1884, p. 956).

The Objectives.—The Wenham "single-front" objective (Fig. 17), the front being often more than a hemisphere, first displaced the Lister style, which had done such excellent service and had become really traditional, and is said by Mr. George E. Davis to be probably the basis of most of the high powers now made ("Pract. Micros.," 1882, p. 52). It is very sensitive to cover adjustment, and is therefore well adapted to use either as dry or immersion, by screw-collar adjustment only. Its smallest lens being single, is also a point in favor of perfection as well as of ease and economy in manufacture. If all makers would as frankly publish their improvements as Mr. Wenham has frequently done, much better progress would be made.

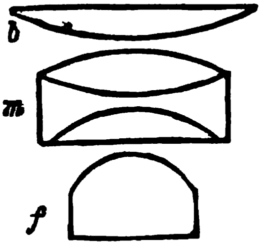

FIG. 17.—SINGLE-FRONT OBJECTIVE.

The "duplex" objective, anticipated as an experiment by Amici and by Mr. Wenham, but first realized as an objective by Mr. Tolles, is adopted for many of the high-power "resolving" lenses of high grade. The duplex front as shown in Fig. 18* consists of two simple lenses close together, whose aberrations are corrected by the over-corrections of two compound lenses behind. Such a system gives a less equable chromatic correction, over the whole width of field, than one whose single front lens is immediately followed by a compound lens; but it likewise presents greater facilities for increase of aperture. The front lens being approximately a hemisphere, with the object at its center of curvature, the first refraction takes place at the first spherical surface, where the spherical aberration is slight and of a nature easily corrected above; and the first refraction subject to considerable spherical aberration takes place at the lower surface of the second lens, where it is limited in amount, and easy of correction, by reason of occurring in the pencil of rays after it has been contracted to some 70° to 90°, while in dry objectives the enormous aberration caused on entering the front lens, where the cone of light is spread out to its widest divergence, is more serious than the sum of all the interior aberrations, and is, in the case of wide apertures, theoretically incapable of complete correction. The added hemispherical front, therefore, reduces the task of correcting a system of extreme aperture to the far easier and more practicable task of correcting one of moderate aperture. The front lens of the Tolles system, shown in the cut, is of exceptionally small size, admitting very precise corrections and giving great capacity to bear high oculars, but possessing a very short working focus, and a smallness of lens itself which, in high powers, renders its construction extremely difficult. In the Zeiss lenses, planned by Prof. Abbe, the front lens is larger, giving longer working focus and greater availability for high-power objectives; an advantage which is gained at some expense in respect of bearing high oculars, and by employing front lenses whose utilized portion is so nearly a hemisphere that the making and setting of them is a difficult mechanical procedure, notwithstanding their larger size.

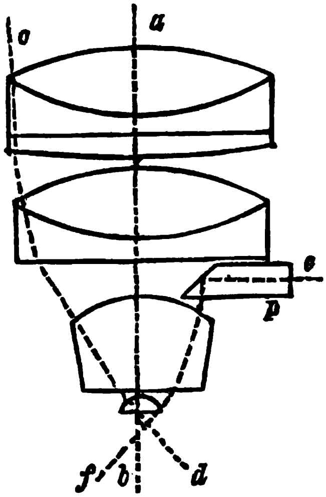

FIG. 18.—DUPLEX-FRONT OBJECTIVE, WITH TOLLES'S ILLUMINATING PRISM.

Though objectives of very high power are occasionally made, even $\frac{1}{100}$ inch focus being announced, the larger and more conservative portion of microscopists evidently incline, as they always have done, toward a much more moderate limit. It is probably quite safe to say that objectives anywhere from $\frac{1}{8}$ to $\frac{1}{12}$ inch, if not lower, can now be obtained which will show, as well as has ever been done, anything that has yet been seen by the microscope.

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* This section shows, with the addition of an illuminating prism, *p*, the famous one-sixth made by Tolles, for Mr. Frank Crisp, Hon. Secretary of the Royal Microscopical Society—one of the earliest systems in which was demonstrated the possibility, as shown by the marginal ray, *c d*, crossing the optical axis, *a b*, at an obliquity (semi-aperture in glass) of 55°, of practically exceeding in immersion objectives the theoretical limit (about 82° interior angle) of dry lenses.

In the "homogeneous" immersion objective, the front lens, by the interposition of a liquid having the same refractive index as itself, is practically extended beyond the balsam-mounted object, or close to the dry-mounted one; by which means all the advantages of the immersion system, which are only approximately attained in water immersion, are fully secured. The homogeneous arrangement, which is now adopted in all work of the highest grade, was partially anticipated by Amici, Wenham, and Tolles, and closely approached by the glycerine immersions of Gundlach, Spencer, and Tolles, and was finally realized by Mr. Zeiss, of Jena, in 1878, at the instigation of Mr. J. W. Stephenson, and under the advice of Prof. Abbe ("J. R. M. S.," 1878, p. 51; 1879, p. 256). As the varying thickness of immersion fluid exactly compensates, theoretically, for the inverse variation in cover glass, and as the selection of the point of best correction presents great difficulties and uncertainties in the case of histological specimens, Zeiss and some others first made these systems non-adjustable, according to the original suggestion (above), and with such distinguished approval as that of Dr. Carpenter ("Encyc. Brit.," xvi, 1883, p. 265), Prof. Abbe, Dr. Dippell, and Mr. Ingpen, all of whom favored the use of even adjustable systems at a single, carefully selected, and fixed average adjustment. To compensate, however, for differences in oculars, tube-length, refractive index of covers, or depth or refractive index of the mounting medium, to all of which these objectives are very sensitive on account of their large aperture, it is doubtless preferable, at least for skillful manipulators, to have an adjustment, as early advocated by Drs. H. Van Heurck and George E. Blackham, and by Messrs. Spencer, Mayall, etc., and this is now added by most makers. The adjustment is likewise needed to enable the same objectives to be used, on occasion, for water or glycerine immersion; the latter at least being adequate for much histological work, and being therefore often substituted for the more intractable and troublesome though more nearly homogeneous oils, resins, gums, or dense saline solutions.* As the adjustment is not indispensable, such lenses may be set in very short mountings for use with binoculars which, like the Wenham and Stephenson, require the objective to be near the prism; a Powell and Lealand $\frac{1}{12}$, thus mounted, having given both fields well lighted with the Wenham prism.

In the theory of the objective but little progress was made after the Tolles-Wenham controversy established the practicability of utilizing in immersion lenses an interior angle of light in excess of that corresponding to 180° in air, until Prof. Abbe, the distinguished and versatile theoretical microscopist of Jena, gave us the doctrine of resolution by diffraction and a rational theory of aperture and its relations to other qualities of objectives. Prof. Abbe, applying to the objective the researches of Helmholtz and himself on the wave theory of light, showed that dioptric resolution by refraction, analogous to ordinary vision, is by nature limited to details of structure not less than $\frac{1}{2800}$ inch apart; and that details finer than this, in the microscopic field, are filled in by a coincident image formed by the recombination by the objective of diffraction bands formed by interference of light at the edges of the object or of its details. Lenses of insufficient aperture to collect all the spectra from points or lines of a given degree of closeness must, therefore, give a false view of these details, or no view at all, and the power of resolution for light-waves of a given length has a definite ratio to the aperture of the objective (for Fraunhofer line $E = a \times 96{,}400$), a limit not yet quite attained in practice, and not capable of being exceeded by any means yet known and understood.*

The angular aperture, by which objectives had been hitherto characterized, gave no satisfactory measure of their working qualities, even when dry, and wholly failed to account for the gain in brilliancy of view and in power of resolution by immersion systems. Prof. Abbe also demonstrated that the practical aperture, or capacity for receiving image-forming rays, is not the angular aperture, but is the ratio between the focal length and the utilized diameter of the system (sine of the semiangle of aperture = sin. u), this varying still further with the index of refraction (n) of the immersion liquid. Thus the numerical aperture ($a = n$ sin. u) of a dry lens of the theoretical limit of 180° will be 1·00, of a water immersion lens of 180° it will be 1·33, and of a homogeneous immersion of 180°, 1·52; these numbers representing the relative resolving powers of the several combinations, while the illuminating powers vary as the squares of the apertures, and the penetrating powers, or depth of fields, vary in the inverse proportion. From similar comparisons it follows that a dry lens of 180° is only equivalent in aperture (1·00) to a water immersion of 97° 31′, and to a homogeneous immersion of 82° 17′; all these having the same illuminating and penetrating power

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* See Dr. Van Heurck's suggestions on homogeneous fluids in "Bull. Soc. Belg. de Mic.," 1881, p. 11, and in "A. M. M. J.," 1882, p. 26.

* The largest apertures now commonly made are 1·30 to 1·40; and the largest claimed for any objective yet made is about 1·47, whose limit should be about 141,000 lines to the inch. The closest lines yet seen, in the writer's judgment, are 120,000, which seem to have been fairly seen on both Fasoldt's and Rogers's plates. The single claim to have seen 152,000, more than the limit for homogeneous immersion objectives in medium of 1·52, is unsupported by such proof or corroboration as to justify its acceptance. The 120,000 lines are theoretically within the limit of water-immersion systems, which have been carried up to a (claimed) *na* of 1·30.

(unity), and a resolving power limited to 96,400 lines to the inch. All powers above these are in excess of the possibilities of a dry lens. For obvious reasons, the numerical aperture increases slowly, in all cases, as the objective approaches 180°, the last few degrees of angular aperture being of small relative value. The following table gives a selection from Prof. Abbe's elaborate computations of these data:*

Numerical aperture. ($n \sin u = a$.)	Angle of aperture (= 2 u). *Dry objectives.* ($n = 1$.)	*Water-immersion objectives.* ($n = 1·33$.)	*Homogeneous immersion objectives.* ($n = 1·52$.)	Illuminating power. (a^2.)	Penetrating power. $\left(\frac{1}{a}\right)$	Theoretical resolving power in lines to an inch. (Line E.)
	° ′	° ′	° ′			
1·52	....	....	180 0	2·310	·658	146,528
1·42	....	....	138 12	2·016	·704	136,888
1·33	....	180 0	122 6	1·770	·752	128,212
1·22	....	133 4	106 45	1·488	·820	117.608
1·10	....	111 36	92 43	1·210	·909	106,040
1·00	180 0	97 31	82 17	1·000	1·000	96,400
0·90	128 19	85 10	72 36	·810	1·111	86,760
0·80	106 16	73 58	63 31	·640	1·250	77.120
0·70	88 51	63 31	54 50	·490	1·429	67,480
0·60	73 44	53 33	46 30	·360	1·667	57,840
0·50	60 0	44 10	38 24	·250	2·000	48,200

The question as to the choice of moderate or extreme apertures for objectives is still open and somewhat evenly disputed. Dr. Carpenter ("The Mic.," p. 200; "Encl. Brit.," 9th ed., 1883, xvi, p. 269; also, his address at the Montreal meeting of the A. A. A. S. in 1882, "A. M. M. J.," 1882, p. 161; "Mic. News," 1883, p. 29) and a large following of conservative judges still hold to the former view—not doubting the value of large aperture, but believing that it should accompany higher powers, and that to a 1-inch, for instance, should not be assigned the aperture and work of a ¼th, nor to a 4/10th that of a ⅛th; and this view is corroborated by the mathematical computations of the relation of aperture to power by Prof. Abbe ("J. R. M. S.," 1883, p. 790). On the other hand, a large number of experienced persons prefer large angles even for biological work; some claiming that the highest attainable angles are the best for all uses and powers. The following table shows in comparison the apertures that have been suggested by the above writers, and those now made by the principal American makers, the angular apertures being given except where *n a* is stated. The figures in the Abbe column apply only approximately to the adopted nomenclature by inches; and they are given, not as a working standard, but as a limit required by theory, and which will be more or less exceeded in practice. The last three columns represent the writer's selection of three ideal series of objectives, of low, medium, and high degrees of completeness and efficiency. There are few persons whose microscopical work could not be well done by the last-named series; though a few specialists, like the Rev. W. H. Dallinger, in his unique researches among the minutest forms of life, employ a great number of lenses which would be practically duplicates in other hands.

OBJECTIVES.	APERTURES.										
			PRACTICAL: BY AMERICAN MAKERS.						IDEAL SERIES. SELECTED BY THE WRITER.		
	Theoretical, by Prof. Abbe.	Recommended by Dr. Carpenter.	Bausch & Lomb Optical Co.	J. Grunow.	Gundlach Optical Co.	H. R. Spencer & Co.	Wm. Wales.	Jos. Zentmayer.	Amateur.	Professional.	Expert.
Inches.	°	°	° °	° °	° °	° °	° °	° °	°	°	°
4	..	9	6–12	12	8	7	9	......	..	9	12
2	11	15	12–22	15–22	15–18	10–20	......	......	12	..	..
1	..	30	20–45	25–50	15–35	25–40	25	......	..	25	30
⅔–½	28	40	27–40	25–65	·25–48	32–47	30	32	35	..	..
⅓	..	45	42–93	65	27–110	50–100	......	......	..	..	.
4/10	35	70	70–110	50–100	60–110	......	75–115	60–80	..	110	75
¼	47	50–80	75–$\overset{na}{1\cdot40}$	75	75–$\overset{na}{1\cdot20}$	100–$\overset{na}{1\cdot28}$	100	......		..	..
⅕–⅙	..	95	110–140	90–135	80–$\overset{na}{1\cdot40}$	$\overset{na}{1\cdot35}$	135–170	90–120	140	..	140
⅛	81	140	115–$\overset{na}{1\cdot40}$	150	135–$\overset{na}{1\cdot40}$	120–175	......	......	..	$\overset{na}{1\cdot30}$	..
1/10	106	150	170–$\overset{na}{1\cdot40}$	130–175	135–$\overset{na}{1\cdot20}$	$\overset{na}{1\cdot25}$–$\overset{na}{1\cdot35}$	135–170	......	..	..	$\overset{na}{1\cdot40}$+
1/12	123	160	130–$\overset{na}{1\cdot40}$	......	$\overset{na}{1\cdot40}$	......	......	......	..	..	..
1/16–1/18	...	170	175–$\overset{na}{1\cdot40}$	160	$\overset{na}{1\cdot12}$–$\overset{na}{1\cdot40}$	135–$\overset{na}{1\cdot35}$	......	......	..	..	..
1/25	...	...	$\overset{na}{1\cdot40}$	......	$\overset{na}{1\cdot20}$–$\overset{na}{1\cdot40}$	$\overset{na}{1\cdot35}$	160 160	......	.	..	..

Variable objectives of low power, mostly 2 or 3 to 4 or 5 inch, changing power gradually by the separation of the lenses by screw-collar movement, were early made by Mr. Zentmayer, and are now no longer uncommon. Those of Zeiss are upon a formula computed by Prof. Abbe.

Most makers correct their non-adjustable objectives for a certain fixed thickness of cover and length of tube. In the Zeiss non-adjustable lenses the thickness of best correction is marked on the setting, and in his adjustable ones the collar-graduation indicates in hundredths of a millimetre the corresponding thickness of cover.

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* For further account of these researches, which constitute one of the most important and revolutionary contributions ever made to theoretical microscopy, see the elaborate papers by Prof. Abbe, Mr. Stephenson, and Mr. Crisp ("J. R. M. S.," 1879, p. 339; 1881, pp. 303, 388; 1882, pp. 300, 460; 1883, p. 790; 1884, p. 20).

The comparatively short working-focus of a high-angled objective is inseparable from the combination selected, but the accompanying want of penetration may be partly relieved by temporarily cutting down its aperture by inserting diaphragms back of the lenses. An iris diaphragm in a Society screw adapter is screwed in above the objective for this purpose. It was proposed by Dr. Royston Pigott in 1869, and again by Mr. W. H. Bulloch in 1878, and finally introduced under the name of "aperture-shutter" by Mr. G. E. Davis in 1882 ("North. Mic.," 1882, p. 13).

The Ocular.—It is one of the curiosities of the microscope that the "*negative*" ocular of Huygens, which consists of non-achromatic lenses, and was early borrowed from the telescope for the microscope (on a mistaken theory of its advantages), has thus far defied both competition and improvement, being conceded to be still the most available ocular for general work. Its construction presents no difficulties, if its simple formula be carried out with reasonable care; and there is, therefore, no need of sensible inequality in its performance, except that smallness of the tube chosen may narrow its field of view. In practice, however, marked inequalities are found, due either to careless workmanship or to a disregard of the well-known principles of construction. Some makers even use the same supply of field-lenses for oculars of various powers. Huygenian oculars are commonly made with powers of from two inches (often marked A) to ¾ or ½ inch (D or E), the one inch being the power said to be employed by prominent makers in correcting and adjusting objectives.

Of more or less achromatic oculars, first introduced by Kellner, various modifications are now supplied by nearly all makers under the names of orthoscopic, aplanatic, or periscopic. These are mostly positive, the achromatic eye-lens having its lower focal plane in or beneath the thick, double-convex field-lens. The field-lens also is sometimes achromatic; and by Mr. Tolles it was made, for micrometric use, in two horizontal sections, balsam-cemented together, with a micrometer-scale ruled, and filled in, on one of the adjacent surfaces where it was out of danger of dust or wear. All these give a broad, white field of view, flat and well defined to the edge, and are, therefore, well calculated for the display of large sections or of polarizing effects; but none of them are fully equal, in defining power and general working character, to the Huygenian form. They are commonly made of powers of from 1½ inch to ¾ inch. For high powers, from ½ to ¼ or even ⅛ inch, the solid eye-pieces introduced by Tolles in 1855, and soon after adopted by Hartnack, of Paris, are now made by nearly all opticians, and are in general use. These are now made achromatic by Steinheil, of Munich, a double-convex lens of crown-glass *c* being cemented in between two meniscus lenses of flint *ff*, as shown in Fig. 19, and grooves being cut around the circumference, and blackened to act as diaphragms, as in the Coddington. The positive Ramsden ocular, formerly much used for micrometry, has been nearly superseded for that purpose by the orthoscopic and the solid.

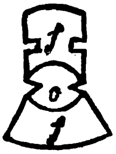

FIG. 19. ACHROMATIC SOLID OCULAR.

In the combining of oculars with objectives, it is still undecided whether it is preferable to secure a sufficient variety of powers by means of a large number of objectives, or by the high and low eye-piecing of a few. Dr. Carpenter prefers the two-inch, which is certainly the least fatiguing to the writer and to many others, and would use even the one-inch only for exceptional purposes, believing that the habitual use of strong oculars is more trying to the eyes than that of high objectives. Prof. Abbe selects ⅔ inch (×15) as the highest really useful ocular. On the other hand, some excellent workers prefer oculars from one inch (the lowest furnished with many Continental and some American stands) upward, using objectives of high aperture to bear such amplification. With the five objectives specified in the last column of the above table, and a full set of oculars, all powers may be easily obtained, from a very low to a very high limit, and lines or points of any degree of fineness known to be visible can be well seen. Some advocates of the forcing policy limit the list of desirable objectives to three; and it has even been claimed that with a good $\frac{4}{10}$ths "we can see about everything that can be shown by any objective."

In respect to size and nomenclature of oculars, important progress has been made through the efforts of the American Society of Microscopists. At the Detroit meeting in August, 1880, a committee upon this subject was appointed, consisting of the president and ex-presidents of the society, to which the succeeding presidents have been successively added. This committee was instructed to report a proposal for a standard size of oculars, in order that these might be interchanged with facility like objectives; and also to recommend a system of nomenclature by which oculars, of whatever make, might be correspondingly named and rationally compared. The committee reported, at the Chicago meeting in 1883, a series of resolutions which were allowed to lie over for discussion until the following year, when they were adopted without material alteration at the Rochester meeting. In this action the society adopts and recommends 1·25 inch as the standard diameter for oculars, but believing that larger and smaller sizes than any one average, however well chosen, will be required and will continue to be made, 1·00 and 1·35 inch were recommended as secondary choices. For convenience in interchanging ocular and sub-stage accessories, 0·75 inch was recommended as a size for the former and 1·50 for the latter ("Proc. Am. S. M.," 1884, p. 228). An ideal series of oculars would probably be 1·00, 1·25, and 1·40 inch, but the committee were constrained to adopt the 1·35 inch as the largest, though too near the 1·25, in order to avoid the confusion of too many standards, the Royal Microscopical Society, after the appointment of the American committee had been made public, and co-operation with its objects had been solicited, having selected and published sizes of its own (of which 1·35 was the largest) without conference with the society which had opened the subject and was known to be working upon it. It was also recommended and decided to name oculars, like objectives, by their equivalent focal length in inches. This approximate system, claiming not extreme accuracy but much convenience, has been from the first applied to objectives both in England and America, and has been likewise applied with satisfaction to the naming of oculars by a few makers and by many microscopists. In order to make the name suggestive of the actual working value of the ocular, so that, for example, a one-inch ocular could be substituted for a two-inch for the purpose and with the effect of doubling the power, it was decided, at least temporarily until experience should develop a better plan, to estimate the numerical names on the conventional basis of one-inch focus, representing an amplification of ten diameters as actually used in the compound microscope having somewhat arbitrarily chosen tube-length of ten inches, including the objective (see tube-length, p. 502, *supra*).

Illumination.—In illuminating apparatus, the more indispensable varieties of which are considered less as accessories than as parts of the stand itself, two important and radical innovations have appeared, the swinging tail-piece above described, and the immersion system.

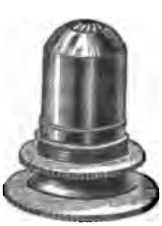

FIG. 20.—IRIS DIAPHRAGM.

Only less important than these are the changes in the construction and arrangement of diaphragms for limiting the amount of light received from the mirror or condenser. The conventional wheel of apertures, a crude and clumsy arrangement which had been typical for years, has been replaced by the graduating diaphragm, of which the smaller forms are called "iris" diaphragms. The recent modifications of this by Sidle and Wale and Bausch & Lomb (see Fig. 20) are small and cheap enough for any stand. Such diaphragms are, in the writer's judgment, by far the most useful and perfect means of accomplishing the object for which they are designed. For very small stands, as the Zentmayer "Histological," the efficient Continental expedient of a "cylindrical" diaphragm, a dark well with a variety of perforated caps, is sometimes substituted. Like the "iris," it is mounted on a sub-stage or in a sliding tube, so that its position may be varied from close to the object-slide to a considerable distance below it. As increase of distance diminishes proportionally the cone of light transmitted from the concave mirror, some of the advantages of the "iris" are thus secured to a limited extent. The cylinder is sometimes contracted above into a cone tapering to the edge of the small aperture, so that the diaphragm may be swung along with the mirror, as it often must be when there is but one tail-piece, without striking against the object-slide (see cut of "Histological" stand). The Continental fashion of letting a plate of apertures into the stage, as near as possible to the bottom of the object-slide, has been adopted by a few American and English makers; but, while very effective in excluding stray light, it falls far short of the above as a means of controlling the angular breadth of the illuminating pencil.

Diaphragms with small apertures, or condensers with small lenses, can be used to really good advantage only with a centering adjustment. In the absence of a centering sub-stage, a centering nose-piece may easily be made to do duty below the stage, as suggested by Mr. E. M. Nelson ("J. R. M. S.," 1881, p. 126).

The use of immersion illuminators was an inevitable and early sequence to that of the corresponding objectives, and it has, at the same time, simplified and improved the illumination of dry objectives. The simplest and one of the most useful forms, is the hemispherical lens (including the average thickness of the glass object-slide) connected with the slide with glycerine or oil in such manner that the object shall be at its center of curvature. This device, introduced for a comparatively trivial purpose by Mr. Wenham in 1856, was assigned to practical use by Mr. Tolles in 1872, and is now universally adopted. It is applicable to any microscope however meager, and is of such almost universal utility, especially in combination with the swinging tail-piece, that a person experienced in its use for general work often finds little necessity for any other illuminator. Its condensing power is small, the object being so far within its focus, but it is used as a means of passing light, without deflection of the axis of the pencil, and with a peculiarly clear and brilliant effect, directly from the mirror or source of light, in whatever position it may be placed, to the object. The interior "balsam" angle of the illumination is therefore directly adjusted by the swing of the tail-piece and indicated by its graduations (shown in engraving of "arc" stand, Fig. 12). When more condensation is required, an objective of one to two-inch focus is inserted in the sub-stage between the mirror and the hemisphere, in which case, as proposed by Mr. Bulloch, the mirror is sometimes replaced by a small lamp mounted on the tail-piece to furnish light without reflection.

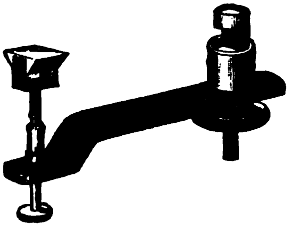

FIG. 21.—PRISM (OR LENS) HOLDER.

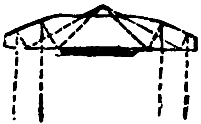

FIG. 22.—STEPHENSON'S CATOPTRIC ILLUMINATOR.

When the hemisphere is held against the slide only by the interposed glycerine or oil, it is liable to slip out of place, especially if the fluid be too abundant or the stage be inclined. To prevent this, a slide is sometimes prepared by pasting a paper slip on the back as a ledge for the lens to rest against, or by forming a cement ring of suitable size and location to surround it when in use; and for the same purpose the hemisphere is sometimes cemented permanently with balsam to the bottom of a glass slide, or is mounted in the center of a thin brass plate fitted to the well-hole of the stage. In all these cases the centering of the lens below the object is somewhat difficult or imperfect, and a better method is to support it by a wire attached to the sub-stage, or, where the sub-stage is wanting, to a special holder which, like the ingenious device of Queen & Co. (Fig. 21), can be clamped to any stage. Even if provided with a sub-stage the separate holder is sometimes useful, in case the sub-stage is required to carry a condensing objective. For small lined objects under high powers the "Wenham button" (Carpenter, "The Microscope," p. 123), whose sharper curvature has its focus nearer the object, and which therefore acts more efficiently as a condenser, is often employed and may be similarly mounted. The immersion prism, shown *in situ* on the holder in Fig. 21, and popularly called the Woodward prism, though introduced to microscopy years before by Mr. Wenham, is of very limited use compared with the hemisphere. Stephenson's catoptric illuminator is a plano-convex lens whose flat side has a silvered center to reflect from above as well as to stop out axial rays, and whose convex surface is silvered above for reflection, and flattened at the center for immersion contact with the object-slide, as shown in Fig. 22. With dry objectives, opaque and dark-field effects are of course produced according as the object is in balsam or dry on the slide ("A. M. M. J.," 1880, p. 204). Perhaps the simplest means of producing similar results is a slip of common looking-glass lying under the slide, with immersion contact, and reflecting upward the rays received from above, somewhat as in Fig. 23; the ray, H, meeting the slide, S, is reflected by the mirror, R, to the object at F, beneath the objective, B. Sometimes an immersion prism is used as a means of getting the ray, H, into the slide without refraction, or H is made to enter a beveled end of the slide for the same purpose. Variations upon this really efficient plan have been described by numerous writers ("Am. Nat.," 1871, p. 607; 1876, p. 752; "A. M. M. J.," 1880, p. 205; 1884, p. 102).

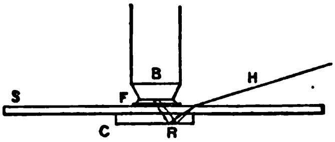

FIG. 23.—LOOKING-GLASS OBLIQUE ILLUMINATOR.

If the immersion illuminating lens be thickened to more than a hemisphere, and furnished below with one or two collecting lenses to increase the amount of light and give it such convergence as to come to a focus upon the object, it becomes the "Abbe illuminater," which is now made by various opticians, and is largely taking the place of all other sub-stage condensers. Two such combinations are shown in section in Fig. 24, giving numerical apertures of 1·20 and 1·40 respectively; and, from present experience, they seem preferable for illuminating purposes to the most carefully corrected achromatic condensers.

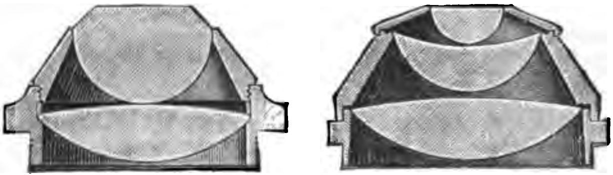

FIG. 24.—ABBE CONDENSERS.

In the so-called "iris illuminator" ("Proc. A. S. M.," 1884, p. 160), instead of the revolving wheel or sliding plate with various sizes of apertures, hitherto combined with the condensing lens systems, the writer has introduced the iris diaphragm for that purpose, the iris being mounted, as shown in Fig. 25, in a sliding plate, which gives it a decentering adjustment, and utilizes its perfect control of light, not only for central light, but also for pencils of any desired obliquity. This arrangement seems specially applicable to the four-tenths achromatic condenser, or to any of the

Abbe condensers having lenses of moderate size. Blue and ground-glass caps, center-stops, polarizing prisms, or any special stops desired, may be adapted at will. Among the special stops used is the horizontal slit or pair of horizontally arranged apertures, Fig. 26, for the better illumination of binocular microscopes (“American Naturalist,” 1870, p. 686).

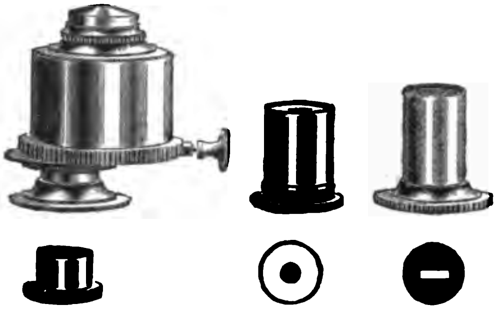

Fig. 25.—Iris Illuminator.

For dark-field illumination, the immersion hemisphere with light, suitably condensed by concave mirror or by lenses, passed through it at an angle exceeding the semi-aperture of the objective, is available on any stand. The Abbe condenser with center-stops gives more light, and leaves little to be desired.

For opaque illumination, the swinging tail-piece now allows the concave mirror to be brought above the stage; and in stands which lack this facility the mirror is sometimes so mounted as to be transferable to the stage itself for the same purpose. It is, however, not fully equivalent to the bull’s-eye. The “vertical” illuminator for high powers of the Messrs. Beck, apparently the most used of the various devices for making the objective its own condenser, is improved by the addition of diaphragms to limit the side aperture in its adapter through which the light enters to be reflected, by an inclosed cover-glass, downward through the objective to the object. Fig. 27 shows this illuminator with cylindrical diaphragm, made by James W. Queen & Co., from designs by Mr. Tilghman. Either of the small apertures in its center ring can be brought into various positions over the main opening, while the whole ring can be made to cut off a vertical half or more of the same. Tolles’s internal illuminator, shown in Fig. 18 in connection with the “duplex” objective, being a reflecting prism, projecting between the lower and middle elements of the objective system, and thus avoiding the glare caused by reflection from the back lenses, has been lately revived by Prof. W. A. Rogers, of Cambridge, Mass., and been used to illuminate metallic surfaces, in his elaborate series of researches in regard to the comparative values of graduated standards of length. It has also been used for like purpose by M. Tresca, at the French section of the International Bureau of Weights and Measures at Paris.

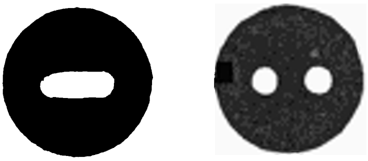

Fig. 26.—Stops for Binocular.

In monochromatic illumination, a substitute for the rather inconvenient (and only blue) ammonio-cupric cell is made by Mr. Zeiss, at the suggestion of Prof. Abbe. It consists of a tube, to be placed horizontally beneath the stage, in which are a pair of spectroscope prisms, which bend the illuminating rays upward in the form of a spectrum through the stage opening. An adjustable slit permits the selection for use of any desired color (“A. M. M. J.,” 1883, p. 171). A very simple and practical arrangement for every-night use, in place of the ordinary blue glass cap, is the graduated disk, contrived by Mr. George H. Hopkins, and made by the Bausch & Lomb Optical Co., which revolves like a wheel, and thus presents over the well-hole intermediate shades from white to dark blue.

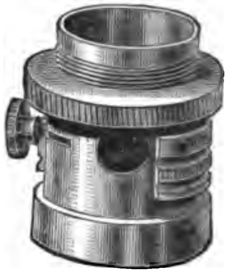

Fig. 27.—Vertical Illuminator, with Cylindrical Diaphragm.

In the improvement of lamps for the microscope, much ingenuity has been expended. Gas and candles having wholly given place to petroleum as the source of light, the cylindrical Argand flame has been likewise discarded—Tolles having shown that the simplest lamp, with the edge of its flat wick turned toward the stage or mirror, gave an easier and clearer resolution than the best “student” lamp. For the large shades surmounting the whole lamp, a cylinder of sheet-iron, or blackened brass or tin just surrounding the chimney, is substituted, with an opening at one side, at the level of the flame, for the emission of light. The opening is often round and supplied with diaphragms, or with a bull’s-eye, in a cylindrical fitting, to be focused upon the edge of the flame. Latterly, the glass chimney has frequently been dispensed with, and the metallic cylinder, with its inserted bull’s-eye, made to take its place; or, the bull’s-eye being not always required, the opening in the cylinder is closed by a 3×1 glass object-slide slipped into grooves at its edges, or by a similar slip of blue or opal glass, the bull’s-eye being mounted upon an adjacent arm of its own. For great portability, the pocket-lamps are necessarily made with very small oil-vessel and correspondingly small wicks; but for other purposes the latest lamps have large, flat, horizontal reservoirs, with a low built burner attached near one edge.

Lately, the electric light has been employed in microscopic illumination, with results as yet imperfect, but not unimportant in themselves, nor doubtful in their promise of a more adequate success. The incandescent or loop lights of small size are mostly employed, giving an illumination remarkably steady and brilliant, exceptionally free from heat-rays, of high resolving capabilities on account of its small proportion of yellow rays, white enough to show colors as they appear in daylight, and well adapted to spectroscopic work, photo-micrography, and resolution with high powers. They were brought into this service by Dr. Van Heurck, of Antwerp, whose remarkable photographs of *A. pellucida* were made by substituting a Swan lamp of six volts for the wick of a Nelson-Mayall microscope-lamp. But as large batteries are inconvenient as well as expensive, and electricity supplied from public stations is not yet generally available, smaller lamps with diminished resistance have been substituted, placing them enough nearer to the object to secure sufficient intensity of light.

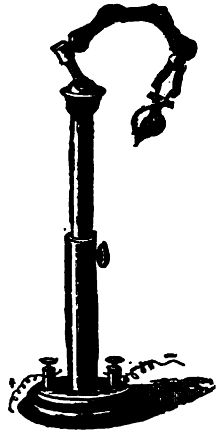

FIG. 28.—INCANDESCENT LAMP; MOUNTED.

Mr. C. H. Stearn, of England, adopted a Swan lamp whose filament is $\frac{1}{10}$ inch long and $\frac{1}{160}$ inch in diameter, and capable of being rendered fully incandescent by two to three Grenet or four to six Leclanché cells; a light of 2½ candle-power being obtained with an electro-motive force of 3½ volts. For the purpose of regulating the intensity of the light, any required number of cells is switched into the circuit, or an adjustable resistance-coil is introduced. The lamps are mounted upon a stand, as in Fig. 28, or upon a bull's-eye stand, or are attached to the microscope itself above the stage for opaque, and close below the object-slide for transparent illumination, and below the sub-stage for use in connection with the achromatic condenser, polariscope, or both ("J. R. M. S.," 1883, p. 29).

An image of the source of light formed at the plane of the object on the stage, which is generally preferred with lamp or white-cloud light, is not equally desirable with the loop, which is therefore placed at such distance that the conjugate focus will be slightly beyond the stage, and the light diffused to the extent found desirable, or with low powers opal instead of clear glass is used for the lamp. A suitable spread of the light over the object, and sufficient intensity at a greater distance from the lamp, may also be obtained by silvering one side of the glass bulb of the lamp so as to reflect toward one side in a beam of parallel rays, as shown in Fig. 29, the light falling upon it from the loop C, which is approximately in its principal focus. These lamps are of a size and form made by Müller, of Hamburg, from specifications by Dr. Theodor Stein, of Frankfort-on-the-Main. They are supplied with horseshoe carbons supported by two platinum wires, and should be used with caution, as a slight excess of intensity in the current will sometimes destroy the carbon.* ("A. M. M. J.," 1884, p. 222; "Journ. N. Y. Mic. Society," 1885, p. 1).

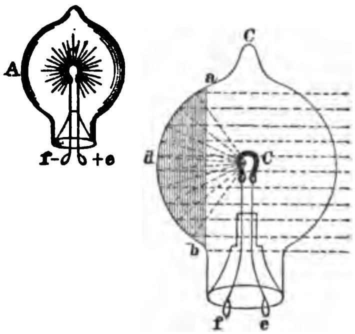

FIG. 29.—INCANDESCENT LAMPS.

A far better mounting than that heretofore mentioned is to attach the lamps, after the plan introduced by Mr. Edward Bausch, to the swinging tail-piece in stands of the American type, as shown in Fig. 30, in which case a single lamp and mounting is sufficient, as it can be readily slipped to any required distance from the object, and as readily located at any angle from the optical axis, either below or above the stage.† The separate sub-stage bar, which is shown in the cut, unused and turned directly above the stage, should be turned down and made to carry a thin iron shield between the incandescent light, wherever it may be placed, and the eye; also a porcelain or opal glass, or white paper shade to be interposed between the lamp and the object for use with low powers, the narrow line of intense illumination furnished by the filament being favorable for definition and resolution with high powers, but furnishing with difficulty the white-cloud effects often desired with low powers having a large field of view.‡ In using lamps of high intensity, Dr. von Voit found it always desirable, and sometimes indispensable, to prevent interference phenomena by placing under the slide a slip of ground glass or oiled tissue-paper ("J. R. M. S.," 1884, p. 966).

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* To secure the warm-stage effects frequently necessary in chemical and biological research, Dr. Stein places a coil of platinum wire, capable of becoming heated by an electric current, beneath the stage, for the purpose of heating the air which passes upward through the stage-opening to the object; the temperature being indicated by a spiral bimetallic thermometer, and controlled by regulating the current by the rheostat.

† Dr. Van Heurck places the lamp in a box, with an opening through the cover for the emission of light directly, without reflection, to the object.

‡ For simpler stands having no separate sub-stage bar, these accessories may be attached with somewhat less convenience to the bar which carries the lamp itself.

It seems advantageous to regulate the strength of the current by means of elevating or depressing simultaneously the battery-plates, which should be hung and counterpoised, for this purpose, or else sustained by a pillar and ratchet, so as to expose a varying surface to the battery-fluid.

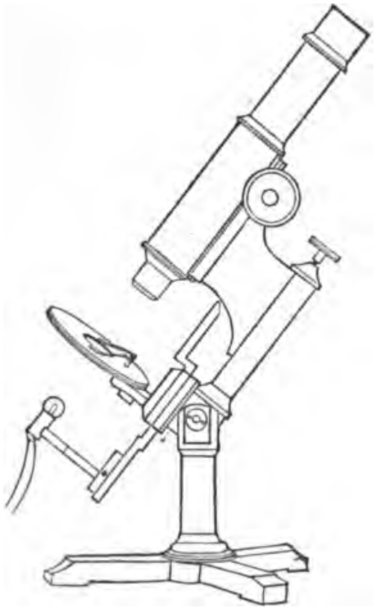
FIG. 30.—ELECTRIC ILLUMINATOR; ON MICROSCOPE OF THE AMERICAN TYPE.

Various secondary batteries, or accumulaters, have been used in connection with the microscopical loop-lamps, with the effect of securing greater constancy in the current; but, in the absence of a public service, where they can be charged by steam-power, or by other sources of supply less expensive than the consumption of battery elements and fluids, they have as yet failed to prove their superiority to the primary batteries above mentioned. Small dynamo-electric machines for similar use are being rapidly perfected; Messrs. T. and S. W. Cuttriss, of Leeds, having produced one suitable for a single twenty-candle-power lamp. Such machines are eligible if supplemented with a small water-motor, or some other of the little engines now becoming common for amateur or domestic use.

Accessories.—In the "*micro-polariscope*" the English style of mounting the analyzer in an adapter, just above the objective, seems to be giving way to the Continental plan of placing it over the ocular; with decided improvement in respect of definition and facility of manipulation, which are gained at a slight expense in narrowness of field. By an adapter fitting over the ocular, and large enough to hold the prism and its mounting, it can be instantly transferred from one location to the other as required.

The calc-spar prism is still conceded to be superior, both as a polarizer and analyzer, to any of the substitutes that have thus far been offered. In the Hartnack and Prazmowski modification of the Nicol prism, which has been used for years in America though lately said by high authority to be not found in England, the prism is cut so that the balsam film lies at right angles to the optic axis instead of in the diagonal between the obtuse angles; the ends are perpendicular to the axis, the length is diminished by about one fourth, and the field is increased from 29° to 35°. Prof. S. P. Thompson has still further increased the field by 9°, by cutting the prism in a principal plane of section, and with the longitudinal axis at right angles to the optic axis of the crystal. These crystals are more costly than the former on account of the greater waste in cutting the spar. Mr. E. Bertrand proposes, in 1884, a plan for still further increasing the field by utilizing the ordinary ray with its greater refractive index. This is accomplished by cutting a prism of flint-glass of index 1·658 through a plane at an angle of 76° 43′ 8″ to the end faces, and between the polished surfaces inserting a cleavage-plate of spar, cemented with a medium of refractive index not less than 1·658. The prism thus obtained is about equal in length to Hartnack's, but has a field of view of 44° 46′ 20″. If cut at an angle of 63° 26′ 15″ and cemented as before, and then cut and cemented again in a plane symmetrical with the former, a prism of half the length is obtained, with an angle of 98° 41′ 30″. Dr. K. Fenssner's prism likewise consists of a glass prism similar in external form to Hartnack's Nicol; the usual large and costly prisms of spar being dispensed with, and instead thin cleavage-plates of nitrate of soda being cemented between the cut surfaces of glass with a mixture of gum-dammar and monobromonaphthalene ("J. R. M. S.," 1883, pp. 428, 575; 1884, p. 965).

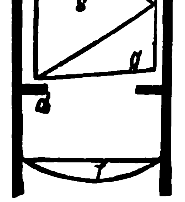

FIG. 31.—ABBE'S ANALYZER.

Prof. Abbe's analyzer (Fig. 31) consists of a double-refracting prism of calc-spar, *s*, achromatized by two glass prisms, *g g*, which deflect from the field the rays polarized at right angles to the refracting edge, while those polarized parallel to the edge pass directly through.

The system is mounted inside a Huygenian ocular between the diaphragm, *d*, and the eye-lens, *e*. Mr. C. D. Ahrens's polarizer, proposed in 1884, consists of three wedges of spar (*s*, *p*, *s*, Fig. 32), the optic axis in the two outer wedges, *s s*, being parallel to the refracting edge, while in the middle wedge, *p*, it is perpendicular and in a plane bisecting the refracting angles. A prism, *g*, of glass is added, which achromatizes one ray and corrects its deviation, but increases the deviation of the other so much that it does not interfere with ordinary observations. The prisms are all cemented together with balsam, forming a compound prism whose length is scarcely more than twice its breadth, and which can be used over oculars A and B without cutting down the field of view.

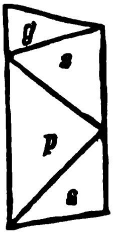

Fig. 32. Ahrens's Polarizer.

For goniometry the modern graduated round stages, in connection with the lines of an ocular micrometer, are found a sufficient as well as economical arrangement, except for the work of specialists, who require the lithological microscopes above mentioned. Even to an absolutely simple round stage, a graduated revolving object-carrier, useful also for other purposes, can easily be added. When made separate from the stand, the goniometer is conveniently combined with the polariscope analyzer; or, as in an excellent recent construction by Mr. Zentmayer, with the cobweb micrometer.

As a *micro-spectroscope* the Sorby-Browning ocular arrangement, notwithstanding its too limited dispersion, continues to be the standard form on account of its general applicability and its ready comparison of different spectra. Its rather unsatisfactory facilities for mapping or measuring the spectra have been improved by the addition of various illuminated micrometers whose image is projected from the side into the upper part of the tube and reflected from the surface of the upper prism into the field of view. Fig. 33 shows at one half size the form manufactured by Zeiss, having below an ocular with an adjustable slit A serving as its diaphragm, above in the tube J a set of direct-vision dispersing prisms between the eye-lens and the eye, and at N the micrometer scale whose image, formed by the lens R and projected into the spectrum by reflection from the upper surface of the top prism, enables the position of dark or bright lines in the spectrum to be determined by a direct reading of their wave-lengths in decimals of μ. The scale reads to the second place of decimals, which may be further subdivided by the eye; and lithographed sheets with scales enlarged to 100 mm. are used for recording observations. At A there is also a supplementary stage and prism, not shown in the cut, for the comparison of spectra. For greater dispersion the prisms have been sometimes transferred, at Mr. W. Crookes's suggestion, to an adapter at the bottom of the draw-tube or of the nose-piece; the slit being placed in the sub-stage, and its image being projected upon the object by means of an objective used as achromatic condenser. This arrangement is applicable to the binocular, and it is easily combined with a double-image prism near the slit, or with an ordinary pair of Nicol's prisms as polarizer and analyzer, in all which cases remarkable results may be attained. The slit may be mounted on a centering nose-piece attached to the bottom of the sub-stage, or on the sliding plate of the "iris illuminator" (Fig. 25), in which latter case it replaces the iris diaphragm, and can be centered by the decentering adjustment of the plate. From his experience with such an arrangement, the writer is inclined to believe that the prisms should be located somewhere at the objective and not at the ocular end of the instrument. A late form of mounting by Mr. Sorby (Fig. 34) places the prisms C between a specially arranged object-glass A and a cylindrical lens F for lengthening the spectrum, the slit being at K, a quartz standard scale for measuring the position of the bands at H, the lines of whose interference spectrum are reflected into the field of view by the small right-angled prism G, and a collecting lens I, which when in use is situated immediately above the object.

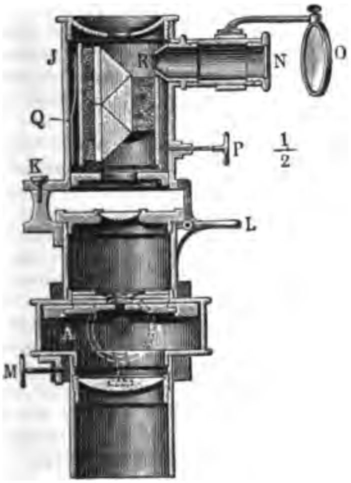

Fig. 33.—Spectral Ocular.

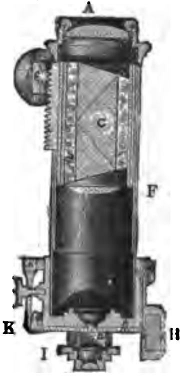

Fig. 34.—Spectroscope for Binocular.

The micro-spectral apparatus devised by Prof. T. W. Engelmann for the study of assimilative action under the influence of luminous rays of different wave-lengths replaces, when in use, the ordinary illuminating apparatus, and consists of a plane mirror, an adjustable slit, a collimating lens, a direct-vision prism, and an ordinary objective to project a spectral image of the slit at the plane of the object on the stage. The spectrum is so distinct that some hundreds of Fraunhofer lines can be seen, and sufficiently intense with ordinary gas-light, and a slit of 0·01 mm. wide, for the study of bacteria under high powers. This apparatus is easily extemporized by placing a slit, collimating lens, and prism in the sub-stage between the mirror and a condenser-objective, like *s*, *e*, and *f* beneath the lens *g* in Fig. 35. The spectro-polarizer of Dr. A. Rollet, of Gratz, is placed between the illuminating mirror and the object, for the study of objects in both monochromatic and polarized light. It consists of a Prazmowski polarizing prism *k* (Fig. 35), a slit at *s* adjustable by the milled head *d*, a collimating lens *e*, a system of direct-vision prisms *f*, whose spectrum is focused upon the object by the lens *g* through the selenite plate *c*. The analyzing prism is placed above the ocular of the microscope with an index moving over a circular scale attached to the ocular to show the exact position of the prism. In using this instrument, the object is placed in one of the dark interference bands caused by the selenite plate, where, if it be doubly refracting even in the slightest degree (like a particle of muscle, for instance), it will appear dark in certain azimuths, but will become luminous in other azimuths in which its optical axis coincides with that of the selenite plate ("A. M. M. J.," 1883, p. 168). This extremely delicate and sensitive instrument can, like the foregoing, be readily extemporized in connection with any good microscope. For the same purpose, and to attain still greater dispersion, Prof. Abbe, at the suggestion of Dr. Dippel, has abandoned the direct-vision prisms, and has devised an arrangement for passing the light horizontally beneath the stage through a polarizer, selenite plate, slit, and achromatic collimating lens, to a pair of dispersing prisms whose spectrum passes upward through an objective at an angle of 90° from its original direction. The image of a scale giving the wave-length of the lines in the spectrum is projected by lenses in a supplementary horizontal tube upon the upper surface of the last prism, and by it reflected into the field of view along with the spectrum. The polarizing prism is mounted in a movable frame which can be turned aside when ordinary light is required ("A. M. M. J.," 1883, p. 174).

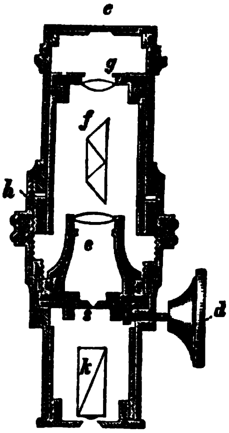

FIG. 35.—SPECTRO-POLARIZER.

The "*Society*" *screw*, of the standard size and proportions recommended in 1857 by the London (now Royal) Microscopical Society as a means of attaching objectives interchangeably to all microscopes, continues in practically universal use in England and America, though not usually attached to the smaller Continental objectives except for purposes of export. The extensive manufacture of the "Society" screw by many manufacturers of various degrees of skill, and possibly the employment of tools and standards altered by wear, have led to such loss of uniformity that the system no longer fully accomplishes its object; the objectives of some reputable makers fitting too loosely into stands of others, while the objectives of the latter enter only partially or with difficulty into the tubes of the former. To remedy this evidently growing evil, the Royal Microscopical Society is now issuing to manufacturers standard steel gauges and taps designed to represent exactly the official screw. These tools are now available and are in general use; but, although they presumably represent quite closely the theoretical "Society" screw, they prove better calculated to guard against future errors than to harmonize existing apparatus. In a paper on this subject read by Mr. Edward Bausch at the American Society of Microscopists, in 1884 ("Proceedings," p. 158), it was shown that three of these taps in his possession were individually imperfect and measurably unlike each other, and that many objectives by various makers would not screw easily if at all into an adapter cut by one of them.* After the reading of this paper a committee was appointed to devise if possible a plan for rendering such apparatus fully interchangeable. Meanwhile those who have instruments cut with the standard taps must either destroy their accuracy by having the screws eased out by "rule of thumb," or else must have no small portion of their objectives, amplifiers, etc., turned down to match, and thereby rendered too loose for their original associations.

The successful introduction of the "Society" screw put a stop for many years to the use of bayonet-catches, which were then being made by Spencer, Grunow, and others for the ready attachment of objectives, and to other labor-saving devices for the same purpose. The labor of manipulating the screw, however, led to the employment of double, triple, and even quadruple *nose-pieces*, by which any one of the specified number of objectives could be rotated promptly into the axis of the instrument. Being firmly made, and with angular arms to hold the unused objectives out of the way of the stage, they proved exceedingly useful in cases where extreme precision was not required; though analogous devices of inferior model and workmanship had before been tried and abandoned. They were limited, however, to four and in most cases to two objectives, were rather costly, and their weight with that of even two attached objectives impaired the usefulness of many forms of fine adjustment. A later and doubtless better device, of which more than a dozen varieties have been introduced, and many of them patented during the last four years, is an adapter to screw permanently into the nose-piece of the microscope; of such construction that any objective may be instantly attached or released, the objective in most cases requiring a specially adapted collar to be worn upon its "Society" screw. Several of these are friction-catches, that of Mr. Parkes, published in 1880, having upon the top of the objective a cylindrical tube which could be slid firmly into the split tube of the adapter. Mr. Frank Crisp immediately proposed the substitution of the conical fitting adopted by Mr. Browning for astronomical eye-pieces; which was accomplished by Dr. Matthews, of the Quekett Club, three years later. Still later Watson & Son, for greater safety, slit the outer cone and surrounded it with a screw-collar for gripping the objective. The conical form is extremely simple, adds but little to the length of the body, and possesses much greater capabilities of cheapness than any other. When properly handled its power of attachment is practically unlimited; but its proper insertion and easy removal depend upon the constant care and skill of the user. In another class of adapters the objective is slipped sidewise under a shoulder at the bottom of a sliding-tube or under the prongs of a horizontal fork, and held up against the nose-piece by a spring. Such are the "objective-carrier" of Nachet, the "objective-extractor" of Vérick and the "Geneva nose-piece," by the Société Genevoise pour la Construction d'Instruments de Physique. Of these, which are especially applicable to the small Continental objectives, the Geneva adapter was doubtless the pioneer, being designed by Prof. M. Thury in 1868, and with some modifications exhibited by the Geneva company at the Paris exhibitions of 1867 and 1878, and was the only one known until after that date. It attracted little attention, however, and at present the modification by M. Nachet (Fig. 36) seems to be by far the most generally known and used, as well as very satisfactory in practice. In another class the bayonet-catches are revived, as in one of Mr. E. M. Nelson's adapters, and in Mr. Bulloch's devised and proposed by Prof. Albert McCalla, in each of which three projecting pins upon the collar are safely locked within the adapter. Cutting away alternate sections of the "Society" screw thread from the objective and nose-piece, so that the former can be inserted without screwing, and locked in position by a slight turn toward the right (a device long familiar in the arts of peace and war) was proposed for the microscope by Mr. Vogan in "Science Gossip," and introduced by Mr. E. M. Nelson at the Quekett Club in 1882. Mr. Zentmayer in his very practical form placed the divided screw on the outside of a "Society" screw collar, and furnished an adapter to match, as shown in Fig. 37, thus obviating any alteration to the objective or microscope. Meanwhile, the nose-piece was made by Jas. L. Pease, of Chicopee, Mass., as a mechanical chuck with power to grasp a collar on the objective. Mr. Thomas Curties, of London, added a "Society" screw thread to the jaws, so as to clasp the objective without a collar; and Mr. Charles Fasoldt, of Albany, N. Y., greatly simplified and improved the apparatus by making one only of the jaws movable and controlled by a spring and lever, as shown in Fig. 88. With this adapter upon the microscope, the formerly tedious procedure of attaching and detaching objectives is reduced to simply touching a lever while placing the objective where it is wanted.

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* Of 94 objectives, etc., by eighteen reputable makers, tested by the writer, 28 by eleven makers were decidedly too tight, and 12 others by six makers would not screw up to the shoulder at all. Those which failed were nearly equally divided between English and American makers.

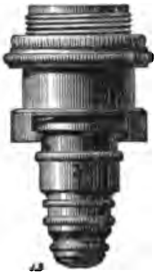


Fig. 36.—Nachet's Nose-Piece.

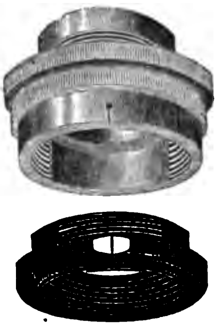


Fig. 37.—Zentmayer's Nose-Piece.

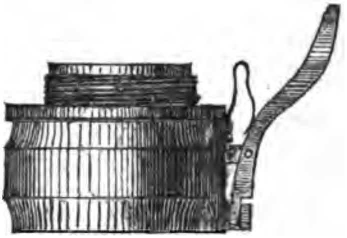


Fig. 38.—Fasoldt's Nose-Piece.

Objective protectors, to enable the microscope to be used with the lower portion of its tube plunged into the liquid containing the objects to be examined, seem to have been originally invented by Dr. C. R. Goring, who described ("Micros. Illust.," London, 1829, p. 174) a modification of his "engiscope," having the compound body prolonged downward below the transverse bar sufficiently to reach near the bottom of a small aquarium-jar; the submerged portion of the tube being protected by a glass tube or "boot," closed at the bottom just below the objective by a piece of plate-glass. A "diagonal boot" was also provided with a mirror set just below the objective at an angle of 45°, by which the field of view was transferred from the bottom to the side of the tank. Sir David Brewster had already suggested the employment of an objective corrected for use in water instead of air; but Dr. Goring, while considering this plan more scientific than his own, feared that it would be difficult to make the object-glass water-tight, and that its being able to serve only in water would be a bar to its usefulness. Raspail substituted for experiments with heated bodies a glass tube closed at the bottom, thus avoiding the danger of heat loosening the cemented cover. Mr. E. Richards likewise arranged a tank microscope, for the examination of organisms which could not be removed from the bottom of the tank without destroying them. The objective was carried below the stage by means of a long adapter, and covered with a long shield-tube, allowing it to be brought within focusing distance of the bottom of a tank eight inches deep, with powers as high as ⅛-inch ("Month. Mic. Jour.," 1874, p. 88). In the early days of immersion lenses, Tolles made some, of low as well as high power, especially corrected to use unprotected in the fluid (water, mucus, serum, etc.) containing the objects. During the past few years the protector shown in Fig. 39 has been made by T. H. McAllister, of New York, at the suggestion of Mr. R. E. Dudgeon, of London ("Nature," 1878, p. 196; Behrens, Am. ed., p. 81). It is a brass tube, attached to the objective only, closed at the bottom with a cover-glass, and is suitable for use in the study or dissection of objects contained in watch-glasses or small troughs. During the present year, Mr. J. W. Stephenson, of London, has revived, probably unconsciously, in his aquarium microscope, the exact contrivance figured by Dr. Goring, only attaching the body to a bar across the aquarium instead of to the microscope-stand.

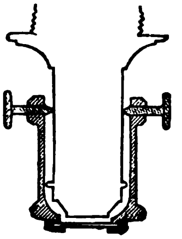


Fig. 39.—Objective Protector.

A protector of thin plate-glass, screwed into the back of the objective to shield the lenses from dust, though employed years ago by the late F. A. Nobert, has been recently patented by H. R. Spencer & Co. Though useful in certain cases of special exposure, its claim to leave the performance of the objective wholly unimpaired may well be questioned.

The Beale neutral-tint camera lucida is still extensively made and used, at least in America. The well-known disadvantages of singly-reflecting instruments are more than counterbalanced by its simplicity and cheapness, in those cases where choice depends largely on the latter considerations. Aside from the substitution of a colorless cover-glass for the original tinted plate, its improvements consist in the convenience and economy of the mounting adopted by different makers, and in the many devices of cork, and wax, and wire, by which a cover-glass can be easily mounted for his own use by any person so inclined. Other singly-reflecting cameras, which have been repeatedly proposed under various forms and names and claims, have failed of extensive adoption; and it may be considered as settled by experience that any one requiring a better camera than the Beale will need a doubly-reflecting form.

Only lately has the original Wollaston camera lucida been fairly superseded by other doubly-reflecting forms, equal in optical performance, and free from its defects of requiring a horizontal position of microscope and constrained steadiness of eye. With one exception the recent improved styles permit, what seems to be a radical improvement, a direct vision of the microscopic field, the pencil and paper being seen by reflection. Nachet's, which may be considered the pioneer as well as the type of these, at least in American usage, consists of a long, flat prism, whose rectangular end covers the eye-lens, permitting a direct and easy view of the field, while rays from the drawing-pencil enter obliquely from below the other end, and are reflected, first through the length of the prism, and then upward into the main axis of vision. The second reflection, in the latest form, is from a translucent film of gold through which the rays of direct vision pass without great loss, as suggested by Prof. G. Govi, lying in the direct line of vision between two obliquely-cut and balsam-cemented sections of the prism. The film of gold tints, in a slight degree, both the drawing and the microscopic field. The excellent working qualities of this apparatus are slightly impaired by the nearness of the drawing-field to the foot of the microscope, and by the nearly vertical position required, unless the drawing-board be inclined, in order to prevent distortion by securing coincidence between the plane of the image and that of the drawing surface. Seibert & Krafft's camera differs only in substituting for the prism a pair of plane

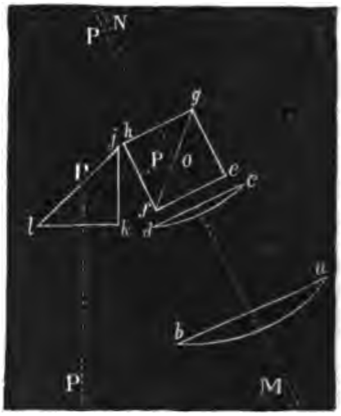


Fig. 40.—Grunow's Camera Lucida.

reflectors, direct vision being accomplished through a hole in one of them; and this is the basis of many amateur arrangements which are easy to make and excellent to use. In Mr. Grunow's camera the prism is separated into two, one of which, as shown in Fig. 40, reflects the rays, P, from the paper horizontally to the other, which turns them upward to the eye at P N, in conjunction with the direct rays, M, from the microscope, which pass through a small central aperture, about half the diameter of the pupil of the eye, at *o* in the reflecting silver film *fg*, which bisects the cubical prism *e h*. When the microscope is inclined at the convenient angle of 45°, the drawing-field is on the plane of the table, directly below the ocular, the optical performance of the apparatus being as excellent as its arrangement is convenient (Behrens, Am. ed., p. 118). Prof. Abbe's camera differs only in substituting a plane mirror for the triangular reflecting prism. Dr. H. Schroeder's, the last brought out, is based upon Mr. Wenham's binocular prism for high powers, and differs from the Nachet camera in having the beveled edges more inclined, so that the oblique axial ray H, Fig. 41, is at an angle of 45° with the direct axis J K, while the second reflection takes place from surfaces C D of polished glass separated by a thin film of air, and sufficiently inclined to give considerable but not total reflection. Unlike the other recent forms, the direct ray, J K, is received from the paper, and the reflected ray, H I, from the ocular, giving a very easy view of the pencil, but some disadvantage in increased distance of the eye-point K from the ocular, and consequent limiting of the field of view. The angular aperture, however, of the cone of light at the eye-point K is about 30°, thus utilizing the whole field of (about) a "B" ocular. This camera is used with the microscope and drawing-field in the same position as is the Grunow apparatus, which it much resembles in satisfactory working qualities ("A. M. M. J.," 1884, p. 221).

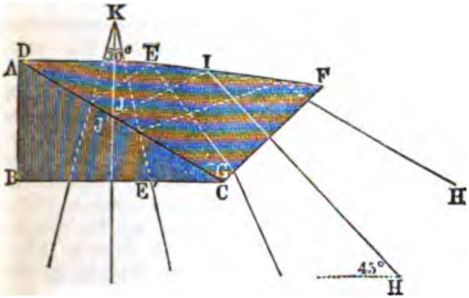


Fig. 41.—Schroeder's Camera Lucida.

Photo-micrography, as a substitute for the camera lucida, in rendering microscopical images material and permanent, was lately a luxury attainable by few, but has now become popular through the adoption of the dry-plate process in photography, the introduction of the amateur camera and its outfit, and the ingenuity with which several experimenters have adapted such apparatus to the microscope. By some, a simple cone slipped over the upper end of the microscope-tube, with a holder at the top for a sensitized plate as in Stein's apparatus ("J. R. M. S.," 1882, p. 118), is made to do good service. Some makers now prepare a special "photo-micro camera" of simple but efficient model, of which a good example is the one devised by Mr. H. F. Atwood ("Proc. Am. S. M.," 1884, p. 176); while others furnish an ordinary amateur camera arranged for use in connection with almost any microscope. Mr. William H. Walmsley's apparatus, shown in Fig. 42, illustrates in detail the arrangement of camera, microscope, and illuminating apparatus adopted by a person of experience and success in this field of labor ("Proc. Am. S. M.," 1883, p. 59). A small

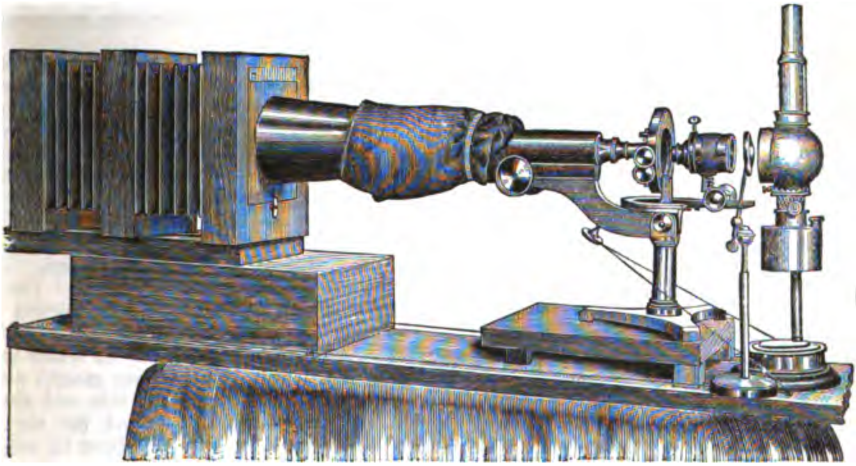


Fig. 42.—Photo-Micrographic Arrangement.

"magic-lantern," with broad-wicked lamp and special condensers, or a special construction like Carbutt's "dry-plate lantern," is often conveniently substituted for the illuminating portion of the apparatus; and a similar adaptation might be made, after suitable changes, of some of the illuminators made for medical and surgical use—as the laryngoscope, for instance.

In micrometry a standard has been adopted as a basis of appeal from the discrepancies among the commercial scales formerly available, some of which varied among themselves as much as three or more per cent. of their length. In 1879 a "National Committee" of sixteen members, representing that number of American microscopical societies, was organized through the efforts of the Troy (N. Y.) Scientific Association. President F. A. P. Barnard, of Columbia College, N. Y., was made chairman of the committee, and the writer secretary. The committee easily and unanimously agreed to accept a metric standard, and to adopt the micron ($\mu = 0{\cdot}001$ mm.) as the micrometric unit; also to secure a standard plate, of carefully verified value, representing one cm. subdivided to ten μ. On the motion of the committee, the American Society of Microscopists, at its Buffalo meeting in 1879, rescinded the action of the Microscopical Congress which the previous year had without due consideration selected the one-hundredth mm. as the micrometric unit. In 1882 a scale answering the requirements of the committee, and designated as "Centimetre Scale A, 1882," was prepared for their use upon a platin-iridium bar made by Matthey, and containing 20 per cent. of iridium, by the United States Bureau of Weights and Measures. The limits of the cm. and of its subdivisions were indicated by triple sets of lines, ruled with great distinctness and regularity. The relation of its total length to the standard metre, and the ratio of its subdivisions, was carefully determined for the bureau by Prof. C. S. Pierce, and remeasured for the committee by one of its members, Prof. William A. Rogers. Prof. Rogers's elaborate study of the plate led to the conclusion that, assuming $0{\cdot}2\ \mu$ to be the limit of precision attainable with certainty in micrometry, the middle defining lines of this standard require no corrections at 62° Fahr. It was then accepted by the committee, and was adopted as its standard by the American Society of Microscopists at the Chicago meeting in 1883. The best one of three copies on glass, designed as working-copies for the testing and correction of common micrometers, which were prepared by Mr. Fasoldt to the order of the society in 1884, proved to be about $4\ \mu$ too long. Though the ruling and spacing are otherwise excellent and the error minute in the small subdivisions ordinarily measured, more accurate copies will doubtless be soon secured ("Proc. Am. S. M.," 1879, p. 28; 1883, pp. 178–200; 1884, p. 220). The report of the comparisons of this copy with the original centimetre scale A by Profs. W. A. Rogers and W. A. Anthony, of Ithaca, N. Y., shows an average deviation of only $0{\cdot}10\ \mu$, Prof. Rogers reporting the scale F to be $4{\cdot}1\ \mu$ too long, according to the mean of his measurements, while Prof. Anthony, working independently, reports it $4{\cdot}2\ \mu$ too long. This is important, as indicating that so small an average deviation as $0{\cdot}10\ \mu$ is attainable with present means of measurement.

Bibliography.—Data pertaining to this subject are scattered throughout nearly all the microscopical books and journals of recent years. References are given in the article only when of practical importance; and for the same reason reviews or reprints most accessible to American readers are usually specified, instead of the original sources from which the data are taken. The following titles which occur frequently are designated by initials or other obvious contractions: Carpenter, William B., "The Microscope," sixth edition, London, 1881; Behrens, J. W., "The Microscope in Botanical Research," American edition, Boston, 1885; "Proceedings of the American Society of Microscopists," yearly; "Journal of the Royal Microscopical Society," bimonthly, London; "American Monthly Microscopical Journal," monthly, Washington, D. C.

MIGNONETTE CASE, THE. What has been generally called "the Mignonette case" came up in the English courts near the close of the year, and attracted unusual attention, both in Great Britain and the United States, as one unprecedented in the annals of criminal jurisprudence. It raised the question whether killing a human being in case of necessity, to get nourishment to sustain life, is murder. This question had never been decided by any English or American tribunal. Hence, there was no precedent or authority to guide the court in deciding it.

A small yacht, the Mignonette, left Southampton for Sydney, Australia, on May 19, 1884. The crew consisted of Thomas Dudley, captain; Edward Stephens, mate; —— Brooks, seaman; and Richard Parker, a boy seventeen years of age. These four comprised all on board. The yacht touched at Madeira, crossed the equator, and on July 5, when about 1,600 miles from the Cape of Good Hope, was wrecked and went down in a storm. Those on board sought refuge in a boat. The only nourishment they were able to secure from the yacht was two one-pound cans of turnips. They had no other food and no water in the boat. On the fourth day they caught a small turtle. On the twelfth day this and the turnips had been consumed, and for the next eight days the men had nothing to eat, and no fresh water to drink except a little rain they had caught in their oil-skin capes. On the eighteenth day, when they had been seven days without food and five without water, the three men began to consider what should be done to prolong their lives in case no succor should come. Dudley and Stephens suggested that some one should be sacrificed to save the rest, but Brooks dissented, and the boy, to whom they were understood to refer, was not consulted. On the next day, the nineteenth after the yacht went down, Dudley proposed to Stephens and Brooks that lots should be cast to determine who should be put to death. Brooks would not agree, the boy was not consulted, and there was no drawing of lots. Dudley and Stephens spoke of their having families, and said that it would be better to kill the boy in order to save the lives of the rest. Dudley then proposed that if no vessel was in sight by the next morning, Parker should be killed. The next day, the twentieth, no vessel appeared. Dudley told Brooks he had "better go and have a sleep," and made signs to Stephens and Brooks that it would be best to kill the boy. Stephens agreed to the act, but Brooks dissented. The boy was then lying at the bottom of the boat, helpless, extremely weakened by famine, and drinking salt water, unable to make any resistance. With the assent of Stephens, Dudley killed the boy. This was on July 25.

The three men fed on the body for four days. On the twenty-fourth day of their being in the boat, they were picked up in a low state of prostration by the German bark Montezuma, and taken to Falmouth, England. On November 3 the attention of the grand jury at Exeter was called to the case by Baron Huddleston. After reviewing the facts, and discussing the legal question involved, he said:

> I am bound to tell you that if you are satisfied that the boy's death was caused or accelerated by the act of Dudley, or Dudley and Stephens, this is a case of deliberate homicide, neither justifiable nor excusable, and the crime is murder, and you therefore ought to find a true bill for murder against one or both of the prisoners. You will perhaps be good enough to say whether, with reference to the mate Stephens, there is evidence that will satisfy you that he was abetting or aiding or sanctioning the conduct of Dudley. If so, you will find a true bill against him. In his statutory examination on oath, he says that the master (Dudley) selected Parker as being the weakest, that he agreed to this, and that the master accordingly killed the lad. Unless you disbelieve him, therefore, you will find a true bill against him as well as Dudley. I may say that Captain Dudley seems to have made no secret of what has taken place, and to have voluntarily furnished all the evidence against himself, although it is quite true that the course taken by the magistrate, very properly, in making Brooks a witness, supplies also evidence for the prosecution. The case having taken place on the high seas, and being a case of British subjects, is one that by British statute is triable here.

The grand jury indicted Dudley and Stephens for murder. On November 6 the prisoners were brought to trial. The evidence against them consisted of the testimony of Brooks and the depositions and statements made by Dudley and Stephens before the Receiver of Wreck at Falmouth. No evidence was put in by the defense. As the question of law involved was novel and doubtful, Baron Huddleston advised that the jury find the facts in a special verdict to be submitted to the Queen's Bench, which tribunal would determine whether the prisoners were guilty of murder. This course was taken. The special verdict returned by the jury recited the facts above given, and concluded:

> That if the men had not fed upon the body of the boy, they would probably not have survived to be so picked up and rescued, but would within the four days have died of famine; that the boy, being in a much weaker condition, was likely to have died before them; that at the time of the act there was no sail in sight, nor any reasonable prospect of relief; that under these circumstances there appeared to the prisoners every probability that unless they then or very soon fed upon the boy or one of themselves they would die of starvation; that there was no appreciable chance of saving life except by killing some one for the others to eat; that assuming any necessity to kill any one, there was no greater necessity for killing the boy than any of the other three men; but whether, upon the whole matter, the prisoners were and are guilty of murder, the jury are ignorant, and refer to the court.

On December 4 the case was argued before the Queen's Bench division of the High Court of Justice, consisting of Lord Chief-Justice Coleridge, Justices Grove and Denman, and Barons Pollock and Huddleston. There was no dispute as to the facts. The only question was the legal one whether killing a human being to obtain needed sustenance for life is murder. The defense argued that such killing is "homicide by necessity," and therefore not a crime. The court unanimously held it to be murder. The grounds for this conclusion were given in an opinion rendered by Lord Chief-Justice Coleridge on December 9. He began by examining the definitions of murder given by early English authorities—Bracton, Hale, and others — which definitions, the defense claimed, "imply, if they do not state, the doctrine that in order to save your own life you may lawfully take away the life of another when that other is neither attempting nor threatening yours, nor is guilty of any illegal act whatever toward you or any one else." He showed that the doctrine was not supported by the authorities cited. The rest of the opinion is as follows:

> Is there, then, any authority for the proposition which has been presented to us? Decided cases there are none. The case of the seven English sailors referred to by the commentator on Grotius and by Puffendorf has been discovered by a gentleman of the bar, who has communicated with my brother Huddleston, to convey the authority (if it conveys so much) of a single judge in the Island of St. Kitts when it was possessed partly by France and partly by this country, somewhere about the year 1641. It is mentioned in a medical work published at Amsterdam, and is altogether as an authority in an English court as unsatisfactory as possible. The American case cited by my brother Stephen in his Digest from "Wharton on Homicide," in which it was decided that sailors had no right to throw passengers overboard to save themselves, but on the ground that the proper mode of determining who was to be sacrificed was to vote upon it by ballot, can hardly, as my brother Stephen says, be an authority satisfactory in a court in this country. The observations of Lord Mansfield in the case of "Rex *vs.* Stratton and others," striking and excellent as they are, were delivered in a political trial, where the question had arisen whether a political necessity had arisen for deposing a Governor of Madras, and

they have little application to the case before us, which must be decided on very different considerations. The one real authority of former time is Lord Bacon, who, in his commentary on the maxim *necessitas inducit privilegium quoad jura privata* lays down the law as follows: "Necessity carrieth a privilege in itself. Necessity is of three sorts—necessity of conservation of life, necessity of obedience, and necessity of the act of God or a stranger. First of conservation of life; if a man steals viands to satisfy his present hunger, this is no felony or larceny. So if divers be in danger of drowning by the casting away of some boat or bark, and one of them get to some plank or on the boat's side to keep himself above water and another to save his life thrust him from it, whereby he is drowned, his is neither *se defendendo* nor by misadventure, but justifiable." On this it is to be observed that Lord Bacon's proposition that stealing to satisfy hunger is not larceny is hardly supported by Stannaford, whom he cites for it, and is expressly contradicted by Lord Hale in the passage already cited. And for the proposition as to the plank or boat it is said to be derived from the canonists. At any rate he cites no authority for it, and it must stand upon his own. Lord Bacon was great even as a lawyer; but it is permissible to much smaller men, relying upon principle and on the authority of others, the equals and even the superiors of Lord Bacon as lawyers, to question the soundness of his *dictum*. There are many conceivable states of things in which it might be possibly true, but if Lord Bacon meant to lay down the broad proposition that a man may save his life by killing, if necessary, an innocent and unoffending neighbor, it certainly is not law at the present day. There remains the high authority of my brother Stephen, who, both in his "Digest," and in his "History of the Criminal Law," uses language perhaps wide enough to cover this case. But it does not cover it of necessity, and we have the highest authority for saying that it was not meant to cover it. If it had been necessary, we must with all deference have differed from him, but it is satisfactory to know that we have probably at least arrived at no conclusion in which if he had been a member of the court he would have been unable to agree. Neither are we in conflict with any opinion expressed upon the subject by the learned persons who formed the commission for preparing the criminal code. They say on the subject:

"We are not prepared to suggest that necessity should in every case be a justification. We are equally unprepared to suggest that necessity should in no case be a defense. We judge it better to leave such questions to be dealt with when, if ever, they arise in practice, by applying the principles of law to the circumstances of the particular case."

It would have been satisfactory to us if these eminent persons could have told us whether the received definitions of legal necessity were in their judgment correct and exhaustive, and if not, in what way they should be amended; but as it is, we have, as they say, to apply the principles of law to the circumstances of the particular case. Now, except for the purpose of testing how far the conservation of a man's own life is, in all cases and under all circumstances, an absolute, unqualified, and paramount duty, we exclude from our consideration all the incidents of war. We are dealing with a case of private homicide, not one imposed upon men in the service of their sovereign and in the defense of their country. Now, it is admitted that the deliberate killing of this unoffending and unresisting boy was clearly murder, unless the killing can be justified by some well-recognized excuse admitted by law. It is further admitted that there was in this case no such excuse, unless the killing was justified by what has been called "necessity." But the temptation to the act which existed here was not what the law has ever called necessity. Nor is this to be regretted. Though law and morality are not the same, and many things may be immoral which are not necessarily illegal, yet the absolute divorce of law from morality would be of fatal consequence; and such divorce would follow if the temptation to murder in this case were to be held by law an absolute defense of it. It is not so. To preserve one's life is, generally speaking, a duty, but it may be the plainest and the highest duty to sacrifice it. War is full of instances in which it is a man's duty not to live, but to die. The duty, in case of shipwreck, of a captain to his crew, of the crew to the passengers, of soldiers to women and children, as in the noble case of the Birkenhead, these duties impose on men the moral necessity, not of the preservation, but of the sacrifice of their lives for others, from which in no country, least of all, it is to be hoped, in England, will men shrink, as indeed they have not shrunk.

It is not correct, therefore, to say that there is any absolute or unqualified necessity to preserve one's life. *Necesse est ut eam, non ut vivam*, is a saying quoted by Lord Bacon himself with high eulogy in the very chapter on necessity to which so much reference has been made. It would be a very easy and cheap display of commonplace learning to quote from Greek and Latin authors passage after passage, in which the duty of dying for others has been laid down in glowing and emphatic language as resulting from the principles of heathen ethics; it is enough in a Christian country to remind ourselves of the example which we profess to follow. It is not needful to point out the awful danger of admitting the principle which has been contended for. Who is to be the judge of this sort of necessity? By what measure is the comparative value of lives to be measured? Is it to be strength, or intellect, or what? It is plain that the principle leaves to him who is to profit by it to determine the necessity which will justify him in deliberately taking another's life to serve his own.

"So spake the fiend, and with necessity,
The tyrant's plea, excused his devilish deeds."

In this case the weakest, the youngest, the most unresisting was chosen. Was it more necessary to kill him than one of the grown men? The answer must be "No." It is not suggested that in this particular case the deeds were devilish, but it is quite plain that such a principle once admitted might be made the legal cloak for unbridled passion and atrocious crime. There is no safe path for judges to tread but to ascertain the law to the best of their ability, and declare it according to their judgment; and if in any case the law appears to be too severe on individuals, to leave it to the sovereign to exercise that prerogative of mercy which the Constitution has intrusted to the hands fittest to dispense it. It must not be supposed that in refusing to admit temptation to be an excuse for crime it is forgotten how terrible the temptation was; how awful the suffering; how hard in such trials to keep the judgment straight and the conduct pure. We are often compelled to set up standards we can not reach ourselves, and to lay down rules which we could not ourselves satisfy. But a man has no right to declare temptation to be an excuse, though he might himself have yielded to it, nor allow compassion for the criminal to change or weaken in any manner the legal definition of the crime. It is therefore our duty to declare that the prisoners' act in this case was willful murder, that the facts as stated in the verdict are no legal justification of the homicide; and to say that in our unanimous opinion they are upon this special verdict guilty of murder.

Lord Coleridge then passed sentence of death on the prisoners. They were recommended to the mercy of the Crown by the jury that tried them, and in this recommendation the judge that presided over the trial, and all the judges of the Queen's Bench that decided the case, concurred. The sentence of death was changed to one of imprisonment for six months.

The American case cited in the discussion of this question in the English courts was tried in the United States Circuit Court held in Philadelphia in 1842. The American ship William Brown was wrecked on a voyage from Liverpool to Philadelphia. The crew and some of the passengers escaped in two boats. To lighten one of the boats, several passengers were thrown overboard by the seamen. There was no drawing of lots. Holmes was indicted for manslaughter under a statute of the United States. The defense was justifiable homicide to save life. The Court (Justice Baldwin) explained that the indictment was for manslaughter instead of murder, because there was no malice, and malice was essential to murder. He held that the necessity alleged in this case was not the necessity that justified homicide. Moreover, there was a distinction between the status of passengers and that of seamen in case of shipwreck. He said:

> The sailor is bound to undergo whatever hazard is necessary to preserve the boat and the passengers. Should the emergency become so extreme as to call for the sacrifice of life, there can be no reason why the law does not still remain the same; the passenger, not being bound either to labor or incur the risk of life, can not be bound to sacrifice his existence to preserve the sailor's. The captain, indeed, and a sufficient number of seamen to navigate the boat, must be preserved; for, except these abide in the ship, all will perish. But if there be more seamen than are necessary to manage the boat, the supernumerary sailors have no right, for *their* safety, to sacrifice the passengers. The sailors and passengers, in fact, can not be regarded as in equal positions. The sailor (to use the language of a distinguished writer) owes more benevolence to another than to himself; he is bound to set a greater value on the life of others than on his own; and while we admit that sailor and sailor may lawfully struggle with each other for the plank that can save but one, we think that if the passenger is on the plank, even the law of necessity justifies not the sailor who takes it from him.

Holmes was convicted and sentenced to six months' imprisonment. The case is reported in the first volume of Wallace, Jr.'s, Reports.

MINNESOTA. State Government.—The following were the State officers during the year: Governor, Lucius F. Hubbard, Republican; Lieutenant-Governor, Charles A. Gilman; Secretary of State, Frederick von Baumbach; Treasurer, Charles Kittelson; Auditor, W. W. Braden; Attorney-General, W. J. Hahn; Superintendent of Public Instruction, D. L. Kiehle; Public Examiner, H. M. Knox; Insurance Commissioner, A. R. McGill; Commissioner of Statistics, Oscar Malmros; Railroad Commissioner, James H. Baker. Judiciary, Supreme Court: Chief-Justice, James Gilfillan; Associates, John M. Berry, William Mitchell, D. A. Dickinson, and Charles E. Vanderburg.

General Condition.—The Governor, in his message to the Legislature of 1885, makes these observations:

> The two years that have elapsed since the Legislature was in session have been marked by a large increase in the population of our State, and a corresponding accession to the aggregate wealth of our people. The increase in the assessed valuation of real and personal property has been about 25 per cent. within two years and 50 per cent. since 1880.
>
> During the year just closed, Minnesota has been blessed with harvests of surpassing abundance. Under the conditions ordinarily prevailing, this would assure to our people great prosperity, but the experience of all grain-growing countries of the world has been so like our own in this respect that, as a consequence, the great distributing markets, unable to absorb the rapid accumulations, have now such a plethora of all cereal products that values have declined till they barely return to the grower the cost of production. In the older sections of the State where our agricultural industry has demonstrated the adaptability of our soil and climate to the employment of the most advanced methods of husbandry, there have rapidly developed in recent years large interests in stock-raising and extensive dairy establishments.

Finances.—To conform to the changes in the fiscal year made by the last Legislature, the reports of the current period cover the eight months ending July 31, 1883, and the year ending July 31, 1884.

The cash balance Dec. 1, 1882, was $148,098.58; July 31, 1883, $303,586.44; receipts during the eight months, $1,875,198.99; during the year ending July 31, 1884, $3,362,562.72; disbursements, $1,714,711.13 and $2,729,354.12 respectively; balance, July 31, 1884, $936,795.04, including—

State institutions fund	$184,863 01
Permanent school fund	434,803 90
General school fund	258,576 57

There had been disbursed during the twenty months covered by these transactions of the treasury, $778,416.55 for the maintenance of State institutions, $612,022.59 in the construction of new buildings for public use, $378,278.82 for interest on the State debt, and $650,158.99 for the general expenses of the State government; all of which has been met by the ordinary revenues of the State, except a part of the interest charge, which is paid from the income of the internal improvement land fund. This interest account, almost wholly due to the railroad adjustment bonds, is a burden recently imposed upon the treasury, and a large part of the expenditure for public buildings has been required to replace structures destroyed by fire. The one-mill tax to which the levy has been reduced, with the other revenues of the State, have, however, been sufficient to provide for this unusual outlay and leave a balance in the treasury.

In 1872 all receipts for taxes on railroad and telegraph companies were set apart as a special fund for the support of the State institutions. At that time the amount realized from these sources was but $57,087.14. It has now become the principal source of revenue the State enjoys, amounting the past year to $651,378.18, largely in excess of the demands upon it.

The additions to the permanent trust funds of the State during the twenty months were as follow:

Permanent school fund	$883,306 15
Permanent university fund	37,668 64
Internal improvement land fund	189,523 93
Total	$1,110,498 72

The aggregate accumulations of these funds amount to $8,219,026.39, divided as follows:

permanent school fund, $6,259,632.38; permanent university fund, $662,788.30; internal improvement land fund, $1,300,605.71.

The congressional grant of land for the use of schools it is estimated will amount to about 3,000,000 acres when the surveys of the State are completed; 908,145 acres of which have been sold at an average of $6.02 an acre. Estimated upon this basis, the common-school fund will ultimately realize over $18,000,000 from this source.

The permanent university grant has 93,081 acres yet to be disposed of, which will swell the accumulations of its fund to fully $1,000,000. The internal improvement land fund has 274,833 acres of its grant yet unsold. Its final accumulations should be nearly $3,000,000. This may properly be denominated a sinking fund for the redemption of the State railroad adjustment bonds, as it has been provided by constitutional amendment that all the revenues of this fund shall be applied to the payment of the principal and interest of those bonds.

The present indebtedness of the State is represented by the following issue of bonds:

Railroad adjustment bonds, issue of 1881, due in twenty, and redeemable in ten years, 4½ per cent.	$4,253,000
Revenue bonds, issue of 1883, redeemable at the pleasure of the State, 4½ per cent.	200,000
Total	$4,453,000

These revenue bonds will be redeemed within the next three years, provision having been made therefor.

The Public Examiner's statement of county finances shows receipts for 1884 of $9,381,126.99, including balance on hand; disbursements, $7,369,703.59.

Education. — The enrollment in the public schools during the year was 223,209, an increase of 26,566 since the last biennial report. During the period 392 new school-buildings were erected, at a cost of $1,085,170, and the sum of $4,808,931.70 was raised for educational support. The three normal schools are in a high state of efficiency. The Normal Board report the following enrollment for the year:

At Winona	503
At Mankato	502
At St. Cloud	370
Total	1,375

—showing an increase of 347 in two years. Of the total enrollment, 672 are in the normal department proper, 300 in the preparatory, and 403 in the model. The number of teachers graduated to date in all the schools is 1,053.

In 1884 the current expenses of these schools were $49,865.34; expended for improvements, $13,723.57.

The number of high-schools to which the State aid of $400 each was apportioned in 1882 was 38; in 1883, 49; in 1884, 53; pupils enrolled, 2,613.

The applicants admitted to the State University were 63 in 1883, and 87 in 1884. The attendance was 223 and 279, and the graduates 25 and 26, for the same years respectively. The department of medicine has been organized. The affairs of the university are generally in a very prosperous condition. The expenditures for the two years were $112,478.25 for current account, and $50,995.85 for permanent improvements.

Hospitals for the Insane.—During the twenty months ending July 31, 1884, there was an increase of 330 in the population of the two State hospitals for the insane. The number receiving care at the date of the trustees' report was 1,193—806 at St. Peter and 387 at Rochester. The capacity of the hospitals during the past two years has been increased by an additional wing at Rochester, and a detached ward at St. Peter, sufficient together to accommodate 375 patients; making the present aggregate capacity of the hospitals 1,275. The added capacity has but little more than met the increase of population of this class.

The expenditures for account of the insane the past two years have been as follows:

ITEMS.	First hospital.	Second hospital.
Building and furnishing and purchase of land	$84,510 93	$92,926 16
Current expenses, 1883 (eight months)	90,294 35	42,771 30
Current expenses, 1884	132,046 49	62,699 97
Total	$306,851 77	$198,397 43

The average weekly cost per capita has been $3.54 at St. Peter and $3.44 Rochester for the past year.

Deaf and Dumb, Blind, and Imbeciles.—There has been a moderate increase in the pupils of each department, the proportion being largest in the school for the feeble-minded. Two hundred and fifty-three pupils were in attendance during the year, divided as follows: deaf and dumb, 151; blind, 42, and feeble-minded, 60. A structure has been added to the Blind Institute, at a cost of $36,578.31. The building for imbeciles has also been enlarged to nearly double its capacity, at a cost of about $24,000.

State Prison.—During the night of January 8 a portion of the shops in which the convicts were employed was burned, and on the 25th another fire reduced to ruins the building of the prison proper, with nearly all its contents. One of the shops destroyed by the first fire was the property of the State. It was determined to rebuild this, and also to restore the prison building upon an improved plan as to its interior arrangement and construction. The structures are completed and now in use.

The cost of the new prison building, including the iron roof of the cell-room, is about $48,000. The new shop was contracted for at $23,000, and $2,700 was expended in restoring the engine and boiler-room, making a total of $73,700 as the cost of replacing the structures destroyed by fire. The loss on furniture and supplies destroyed with the buildings was $4,738.58. The insurance was $21,043.81.

In addition to the restored buildings there has just been completed a new cell-building containing 130 cells, at a cost of $49,935, which has been paid from the standing appropriations for permanent improvements. The prison now has a capacity for 426 convicts, and at the date of the warden's report, at the close of the fiscal year, it contained 356, an increase of 78 in two years. The expenses were $39,595.64 for 1883, and $59,989.98 for 1884; earnings, $22,913.09 and $33,732.30 for the same period.

Reform School.—This institution, since its establishment in 1868, has graduated over 500 boys and girls, most of whom have become, or give promise of becoming, useful members of the community. The report of the managers shows 129 inmates at the end of the last fiscal year. The expense for maintenance for the twenty months ending July 31, 1884, was $47,700.95; of which sum $23,728.73 has been reimbursed by the counties contributing to its inmates.

Banks.—The banking statistics are summarized as follows, the last column showing the increase since 1882:

Number of banks	214	36
Capital stock (149 banks)	$15,904,754	$6,558,537
Surplus fund (84 banks)	2,300,144	699,167
Deposits (86 banks)	27,284,117	4,573,812
Loans and discounts (86 banks)	37,572,756	10,425,432

Of the above-named banks 48 are national, 32 State, 6 savings, and 128 private. The figures given, being for less than half the banks of the State, are not very satisfactory.

Insurance Statistics.—The report of the Insurance Commissioner furnishes the following comparative statement:

YEARS.	Risks.	Premiums.	Losses.
1883	$188,063,006	$2,457,825	$1,920,198
1881	122,070,500	1,596,353	914,950
Increase	$65,992,506	$861,472	$1,005,248

The increase, as indicated by this statement, is greater than the entire insurance business of the State seven years ago. The revenues of the State have been augmented by taxes and fees collected through the commissioner's department the past two years as follows: 1883, $55,194.47; 1884, $67,167.38.

Logs and Lumber.—The following statistics of the lumber interests of the State are furnished by the surveyors-general of the districts named:

FEET OF LOGS SCALED.

DISTRICTS.	1883.	1884.
First district	283,901,470	287,224,770
Second district	279,064,440	306,024,950
Fifth district	59,237,330	97,979,430
Totals	622,203,240	691,229,150

FEET OF LUMBER MANUFACTURED.

DISTRICTS.	1883.	1884.
First district	164,989.867	144,329,000
Second district	398,178.995	414,270,514
Fifth district	182 450.000	224.883,300
Totals	745,618,862	783,482,814

Fish-Culture.—The work of the Fish Commission has been much extended the past two years, and considerable additions made to the State hatchery. The distribution among the waters of the State has been as follows:

SPECIES.	1883.	1884.
Whitefish	4,990,000	4,950,000
Landlocked salmon	19,000	......
Lake Superior trout	92.000	167,000
Brook-trout	147.100	340,000
German carp	4,500	......
Western trout	......	9,000
Totals	5,252,600	5,466,000

Railroads.—The total number of miles of completed road reported within the State, Dec. 1, 1882, was 3,749.13. The total number Dec. 1, 1884, was 4,162.22. The total earnings of these roads within the State was, for the year ending June 30, 1882, $18,805,193.16. The total earnings for the year ending June 30, 1884, were $23,243,466.22. The total operating expenses, which amounted to $10,221,783.69 in 1882, were $11,784,253.58 for the year ending June 30, 1884. The average earnings per mile had increased from $5,642.24 to $5,924.77 in two years; while the average operating expenses had been reduced from $3,066.90 to $3,004.28. The taxes paid to the State on the gross earnings during the past year were $645,735.18.

Election.—The following was the vote cast for Presidential Electors on the 4th of November: Republican, 111,685; Democratic, 70,065; Greenback, 3,583; Prohibition, 4,684. Judge Berry was re-elected, and five Republican Congressmen were chosen. The Legislature of 1885 is constituted as follows: Senate, 30 Republicans and 17 Democrats; House, 70 Republicans and 33 Democrats.

Gold Discoveries.—Toward the close of the year discoveries of gold in Lake and Cook counties were reported. In a few weeks large quantities of land were taken up.

MIRYACHIT. See NERVOUS DISEASES.

MISSISSIPPI. **State Government.**—The following were the State officers during the year: Governor, Robert Lowrey, Democrat; Lieutenant-Governor, G. D. Shands; Secretary of State, Henry C. Meyers; Treasurer, W. L. Hemingway; Auditor, Sylvanus Gwin; Attorney-General, Thomas C. Catchings; Superintendent of Public Education, J. Argyle Smith; Commissioner of Agriculture and Immigration, E. G. Wall. Judiciary, Supreme Court: Chief-Justice, J. A. P. Campbell; Associate Justices, H. H. Chalmers and Timothy E. Cooper.

Legislative Session.—The Legislature met on the 8th of January and adjourned on the 15th of March. Among the acts passed are the following:

A number prohibiting the sale of intoxicating liquors in various localities; to consolidate the Eleventh and Twelfth Circuit and Chancery Court districts; concerning railroad-crossings (regulating the crossing of tracks by the lines of other companies); to prevent the unlawful obstruction of water-courses; to amend the laws regulating insurance deposits; to incorporate the Board of Levee Commissioners for the Yazoo Mississippi Delta; authorizing the survey and sale of certain marsh-lands belonging to the State of Mississippi, on the banks of the East and West Pascagoula and Pearl rivers, and other streams; to secure the faithful collection of delinquent personal taxes; to require the trustees of certain institutions to whom money is appropriated to make biennial reports to the Legislature of the manner in which said money is expended; to provide for the appointment of guardians of habitual drunkards, and for their confinement in the Lunatic Asylum; to create the Exposition Bureau and to make an appropriation therefor (New Orleans Exposition); to regulate the sale of swamp-lands; to protect the Pascagoula and Dog rivers and the harbor of Pascagoula Bay; to prevent the sale or exhibition of obscene and immoral literature, pictures, models, casts, etc.; to change the twenty-ninth senatorial district into two senatorial districts.

The principal provisions of an act for the better protection of contracts between landlord and tenant, employer and employé, seem worthy of quotation, to wit:

> Any person who decoys, entices, or persuades any apprentice, child, or servant to leave the service or employment of his or her parent, guardian, or employer, must on conviction be fined not less than ten nor more than fifty dollars.
>
> Any person who knowingly interferes with, hires, employs, entices, or induces to leave the service or employment of another, any tenant, laborer, or employé, who has stipulated or contracted in writing, or in the presence of two or more credible witnesses not members of family of either contracting party, to serve for any given number of days, weeks, months, or for one year, before the expiration of the term stipulated or contracted for, such contract being in force and binding upon the parties, shall be deemed guilty of a misdemeanor, and on conviction must be fined in such sum not less than twenty-five nor more than one hundred dollars, as the court or jury trying the same may assess, and in no case less than double the amount the injury sustained by the party whom such laborer, employé, or tenant was induced to leave.
>
> When any laborer, tenant, apprentice, or employé, having stipulated or contracted as provided in the preceding sections, is afterward found in the service or employment of another before the termination of such contract, that fact shall be held *prima facie* evidence that such person is guilty of a violation of those sections if he fails and refuses to forthwith discharge such apprentice, laborer, tenant, or employé after being notified and informed of such former contract and employment.
>
> If any employer having contracted in writing with any employé to furnish him lands or supplies for himself and family, shall knowingly, willfully, designedly, or with intent to defraud such employé discharge such employé without good and sufficient cause, or refuse to furnish him according to contract or to carry out his contract, he shall be liable to said employé in such reasonable damages as he may sustain in any court having jurisdiction.
>
> When at any time any employé or tenant shall leave his other employer or landlord before the expiration of contract without just cause, said employé or tenant shall forfeit all wages on crops due or belonging to him or her; and furthermore said employer shall have a lien on all wages or crops of said employé or tenant earned or grown by him or her during the time of original contract until all indebtedness justly due for advances of either supplies or money made under contract aforesaid are paid, and this lien shall be prior to all other liens except public dues: *Provided*, That where the employé or tenant has created equities with the consent of the landlord or employer to any person for supplies to raise said crop, they shall not be forfeited by any abandonment of the tenant or employé.

An act was passed making it a misdemeanor for any legislative, executive, judicial, or ministerial officer in the State, or for any person holding an office or place of honor, profit, or trust under the laws of the State, to travel upon any railroad in the State without paying absolutely, and without any guise, trick, subterfuge, or evasion whatsoever, the same fare required of passengers generally.

By another act, "an Industrial Institute and College is established, for the education of white girls in the arts and sciences, which shall be known as the Mississippi Industrial Institute and College for the Education of White Girls of the State of Mississippi in the Arts and Sciences, at which such girls may acquire a thorough normal-school education, together with a knowledge of kindergarten instruction, also a knowledge of telegraphy, stenography, and photography; also a knowledge of drawing, painting, designing, and engraving in their industrial application; also a knowledge of fancy, practical, and general needle-work; and, also, a knowledge of bookkeeping." The sum of $20,000 was appropriated for 1884, and the like sum for 1885.

Railroad Supervision.—The subject of railroad supervision was brought up at the beginning of the session, and a bill was early passed through both houses, which, however, encountered the Governor's veto. It was then modified to meet the Governor's objections, and became a law under the title of "An act to provide for the regulation of freight and passenger rates on railroads in this State, and to create a commission to supervise the same." It enacts—

> That the track of every railroad in this State is a public highway over which all persons have equal rights of transportation for passengers and freights on the payment of just compensation to the owner of the railroad for such transportation; and any person or corporation engaged in transporting passengers or freights over any railroad in this State, who shall exact, receive or demand more than the rate specified in any bill of lading issued by such person or corporation, or who for his or its advantage, or for the advantage of any connecting line, or for any person or locality, shall make any discrimination in transportation against any individual, locality, or corporation, shall be guilty of extortion.

Persons and corporations committing such extortion are declared guilty of a misdemeanor, and may be required to pay double damages at the suit of an aggrieved party. A Railroad Commission of three members is constituted, to be appointed by the Governor with the consent of the Senate for two years, and to serve at a salary of $2,500 per annum. The commissioners are given large powers of supervision over the railroads of the State, including the regulation and fixing of charges for transportation.

Soon after the adjournment of the Legislature, steps were taken to test the constitutionality of the act. A bill was filed in the Circuit Court of the United States for the Southern District of Mississippi, by the Illinois Central

Railroad Company, against John M. Stone, William McWillie, and W. B. Augustus, who had been appointed commissioners, seeking to enjoin them from performing any of the duties imposed by the act.

The prayer of the bill is that an injunction "may be forthwith issued, directed to the defendants, and commanding that they absolutely abstain from all acts of interference with the management of your orator's business in operating the Chicago, St. Louis, and New Orleans Railroad; that they particularly abstain from revising or establishing or promulgating any tariff of rates for that road, or your orators operating the same."

Judge Hill granted the preliminary injunction, holding the act unconstitutional, because (1) it violates the charter contract between the State and the Chicago, St. Louis, and New Orleans Railroad Company; and (2) because it is a regulation of commerce.

This suit and several others instituted against the commission await the final determination of the United States or State Supreme Court.

Appropriations.—The following are among the appropriations of the session:

For the support of the Agricultural and Mechanical College for 1884	$32,5^0
And for 1885	82,500
And the further sum of $10,000 to repair the damage caused to the buildings of the college by the cyclone of March 11, 1884.	
For support of Alcorn University, including the interest on the agricultural land-scrip bonds, for 1884.	11,000
And for 1885	11,000
For improvement of buildings, including the purchase of such furniture and other equipments for said Alcorn University as may be deemed necessary by the Board of Trustees	11,000
For the support of the Lunatic Asylum for 1884	67,500
And for 1885	67,500
For heating-apparatus and for other purposes for the Lunatic Asylum at Jackson	10,000
For the completion and furnishing of the East Mississippi Insane Asylum at Meridian	56,000
For the support of the East Mississippi Insane Asylum at Meridian, for 1884	20,000
And for 1885	80,000
For the support of the Deaf and Dumb Asylum for 1884	15,800
And for 1885	15,800
For salaries of Railroad Commissioners and expenses of said commission, pay of clerk, etc., for 1884	12,500
And for 1885	12,500
For the support of the Asylum for the Blind for 1884	10,000
And for 1885	10,000
For interest on the Chickasaw school fund for 1884 and 1885	180,000

The State tax for each of the years, 1884 and 1885, was fixed at two and a half mills on the dollar. Except in a few counties, the annual county tax, including the State tax, can not exceed $12.50 on each $1,000.

Political.—The Republican State Convention met in Jackson, on the 22d of April, and chose delegates to the National Convention of the party. The resolutions declared (1) in favor of Mississippi river improvement, (2) a protective tariff, (3) the Blair bill, (4) that the convention has no first choice for President, (5) that the delegates from States having no apparent prospect of casting their votes for Republican candidates should yield their preferences, (6) approving the administration of President Arthur.

The Democratic State Convention met for a similar purpose, in the same city, on the 11th of June. The vote for Presidential Electors on the 4th of November was officially declared as follows: Democratic, 76,510; Republican, 43,509. Seven Democratic Congressmen were declared elected.

Statistics.—According to the Auditor's report for 1883, the total acreage of taxable realty in Mississippi is 29,335,586; valuation thereof, $87,596,173; State tax thereon, $218,990.43. From which it would appear that the average valuation of realty in Mississippi is only a fraction over three dollars an acre.

The disbursements by Auditor's warrants for 1883, under forty different headings, amounted to $745,266.24.

The total privilege taxes collected by the Auditor of Public Accounts, for the year 1883, was $108,181.83. Warren county was the largest contributor, $8,913.50; Quitman the smallest, $9.50.

The total amount paid into the State Treasury in 1883, on account of licenses to retail liquors, is $168,780.22. Washington county was the largest contributor, $14,200; Warren the next, $11,431.67; Hinds next, $9,100. The smallest contributors were Franklin, Pontotoc, Simpson, and Union, $200 each.

The Commissioner of Immigration and Agriculture reported, at the beginning of the year, that the aggregate of railroad-track laid in Mississippi, and in running order, was about 476 miles, and the total miles that would be completed by July 1, 1884, was 616 miles.

Education.—Under date of Jan. 28, 1884, the State Superintendent of Public Education, reporting for 1882 and 1883, says:

> Public education is unquestionably growing in the estimation of the people, as evinced in the willingness of the masses to pay the school-tax, the desire to extend the school term beyond the constitutional limit of four months, and the desire to employ competent teachers. To render more effective the workings of the public-school system, I have to suggest, in the first place, an additional increase in the funds for the maintenance of the public schools. And to this end the poll-tax should be increased from one to two dollars per capita. Then I would recommend that the restriction upon boards of supervisors to levy as a maximum not more than three mills, be removed, and they be allowed to levy such tax as they may deem proper. Three mills on the dollar should, in my opinion, be the minimum levy. The public schools can not be run successfully for less.
>
> One of the greatest obstacles to the advancement of our public-school interests is the indifference and inefficiency of our local trustees. It is a subject of regret that men, in many instances, are chosen for these responsible positions who are entirely unfit or unworthy for the place. To make the office of trustee more desirable, and at the same time exclude incompetents, I would suggest that they be exempt from road duty; and that none be eligible who can not read and write the English language, as many now occupying the position can not.
>
> It is with regret that I have to state that Mississippi, in my opinion, is behind most of her sister States in the qualification and efficiency of her public-school teachers. And this I attribute to the absence of schools devoted to the teaching and training of teachers. Mississippi is the only State in the Union where nor-

mal schools are not established for qualifying white teachers for our public schools. We have a normal school for the education and training of colored teachers at Holly Springs, and I am of the opinion that it is doing good work. But we have not a school in the State, supported wholly or in part by the State, for the advancement of our white teachers.

The following are the general statistics of the schools for the years 1882 and 1883, showing all the important facts and results as to enrollment, attendance, number of teachers employed, of both races, expenses, etc.:

	1882.	1883.
Number of educable children	444,181	447,571
White	185,026	180,093
Colored	259,105	267,478
Average monthly enrollment	172,522	209,716
White	82,985	93,816
Colored	89,587	115,900
Number in schools during year	214,081	266,996
White	104,451	125,598
Colored	109,680	141,893
Average daily attendance	135,816	154,463
White	61,788	68,946
Colored	78,578	85,517
Number of teachers	5,182	6,387
White	2,910	3,594
Colored	2,272	2,793
Total receipts	$610,284.81	$880,914.09
Total expenditures	680,640.04	808,875.90

The average salary of teachers is about $30 a month, and the average length of the school-year is about two and a half months, except in the principal towns, where it is five months.

MISSOURI. State Government.—The following were the State officers during the year: Governor, Thomas T. Crittenden, Democrat; Lieutenant-Governor, Robert A. Campbell; Secretary of State, Michael K. McGrath; Treasurer, Philip E. Chappell; Auditor, John Walker; Attorney-General, Daniel H. McIntyre; Superintendent of Public Schools, William E. Coleman; Register of Lands, Robert McCulloch; Superintendent of Insurance Department, John F. Williams; Commissioner of Labor Statistics, Henry A. Newman. Judiciary, Supreme Court: Chief-Justice, Warwick Hough; Associate Justices, John W. Henry, Elijah H. Norton, Robert D. Ray, and T. A. Sherwood.

Finances.—The following tables show the increase in valuation in real and personal property. Under the law of Missouri, the assessments upon all taxable property, except merchandise, are made between the first day of June and the first day of January, and the valuation is placed upon it on the first day of June. The taxes upon this assessment are collected in the following autumn, more than a year after the assessment is made:

TAXES ON	1881.	1882.
Real estate	$406,104,426 00	$442,826,742 00
Personal property	168,265,859 00	170,818,976 00
Railroad companies	80,809,878 85	83,873,739 46
Telegraph companies	848,219 90	842,785 40
Bridges	1,695,000 00	1,910,000 00
Total	$601,722,888 75	$649,267,242 86

KIND OF PROPERTY.	Valuation for taxes of 1883.	Valuation for taxes of 1884.
Assessed valuation of real estate	$448,144,455 00	$496,730,668 00
Assessed valuation of personal property	178,345,191 00	187,145,751 00
Assessed valuation of railroad property	86,871,955 79	88,860,816 96
Assessed valuation of bridge property	2,425,000 00	3,000,000 00
Assessed valuation of telegraph property	478,812 89	518,528 47
Aggregate assessments	$656,250,414 68	$725,775,259 43

BONDED DEBT, JANUARY 1, 1883.

State bonds outstanding	$13,947,000
School certificates of indebtedness	2,909,000
Certificates of indebtedness for seminary fund	122,000
Total debt Jan. 1, 1883	$16,978,000

In 1883 and 1884, State bonds were redeemed and purchased aggregating $2,144,000.

During these two years the State interest-bearing debt was increased by reason of certificates having been issued to the school and seminary funds as follows:

For the State school fund	$22,000
For the benefit of the State University	387,000
Total	$409,000

Deducting certificates issued from bonds redeemed and purchased, the actual reduction of the interest-bearing debt in 1883 and 1884 was $1,735,000, leaving the debt Jan. 1, 1885:

State bonds outstanding	$11,808,000
School-fund certificates	2,931,000
University certificates	509,000
Total interest-bearing debt Jan. 1, 1885	$15,248,000

The annual interest on the public debt, as it existed Jan. 1, 1883, amounted to $1,018,680. As it now exists, the annual interest amounts to $910,490. The annual interest on the bonded debt is $708,180. On the certificates in the school and seminary funds the annual interest amounts to $202,810.

Under the Constitution, the rate of State tax can not exceed forty cents on the $100 valuation. Section 8 of Article X of the Constitution reads as follows: "The State tax on property, exclusive of the tax necessary to pay the bonded debt of the State, shall not exceed twenty cents on the hundred dollars' valuation, and whenever the taxable property of the State shall amount to $900,000,000, the rate shall not exceed fifteen cents." "If," says the Governor, "the large number of bonds, notes, and other evidences of debt, now held in concealment within and without this State by its citizens, were given in to the assessors, that amount would be largely exceeded."

The following table shows the receipts from all sources, with disbursements, transfers, and balances for two years ending Dec. 31, 1884:

Jan. 1, 1883	$860,463 55
Receipts and transfers, 1883	4,604,717 26
Total	$5,465,180 81
Disbursements and transfers, 1883	4,452,858 49
Jan. 1, 1884, balance	$1,012,323 32

Balance brought forward	$1,012,328 32
Receipts and transfers, 1884	4,800,542 77
Total	$5,812,871 09
Disbursements and transfers, 1884	4,393,975 22
Balance, Jan. 1, 1885	$1,418,895 87

With reference to the bonded debt, the retiring Governor, in his message to the Legislature of 1885, says:

This General Assembly must provide for the payment or funding of the following portions, which mature before the Thirty-fourth General Assembly shall convene:

1885	$3,000
1886	2,129,000
1887	3,720,000
Total	$5,852,000

There will be in the Treasury on Jan. 1, 1885, $1,418,895.87; of this sum $1,200,000 can be safely used in a further reduction of the debt, leaving upon that calculation an existing debt of $932,000 to be provided for in 1885 and 1886. I think the incoming revenues during the year 1885 will meet that sum, leaving only the bonded debt maturing in 1887 to be provided for in some way.

On the controversy with the Hannibal and St. Joseph Railroad, he says:

In addition to the $3,090,000 originally paid by the railroad company to the State, which was claimed by the railroad to be all that was due to the State on account of the Hannibal and St. Joseph Railroad aid bonds, the litigation has so far resulted in a judgment in favor of the State for $566,049.27 more, $90,000 of which has already been paid into the State Treasury, and for the balance of which, to wit, $476,049.27, the State has a lien upon the property of the railroad company if the judgment of the United States Circuit Court should be affirmed by the Supreme Court of the United States.

The bonded indebtedness of counties is $11,028,105.25; of townships, $3,291,600; of cities and incorporated towns, $26,434,826.25, including $22,196,000 for St. Louis.

Railroads.—Since May 1, 1883, there have been constructed 236 miles of railroad in the State—113 miles in 1883 and 123 miles in 1884—making 4,738 miles of railroad now in operation in Missouri.

Gross earnings for 1883	$28,754,884 96
Gross earnings for 1884 (estimated)	29,000,000 00
Gross earnings per mile for 1883	6,348 00
Gross earnings per mile for 1884 (estimated)	6,121 00
Total stock chargeable to number of miles up to Jan. 1, 1885	117,766,233 00
Being equal to, per mile	26,429 00
Total bonded debt Jan. 1, 1885	106,958,557 00
Equal to, per mile	24,106 00

Penitentiary.—The earnings and receipts for 1883 and 1884 (December, 1884, estimated) were $266,897.82, and there was expended for maintenance during those years (December, 1884, estimated) $238,486.10, leaving $28,411.72 upon the credit side of the prison, which was expended upon it. The last Legislature appropriated $155,000 to replace certain buildings or workshops that were destroyed by fire Feb. 23, 1882, and to extend the walls of the penitentiary and do certain other specific work detailed in the bill. These demands exhausted the appropriation before the work was completed. Under the direction of the prison inspectors the warden expended $18,543.30 for materials purchased and used in the construction of the buildings and wall. In addition to this sum, he expended $14,000 for brick, rock, labor, etc. If credit is given for those amounts, there is a surplus of $40,000 in favor of the prison, which surplus accrued during the year 1884. The new buildings have been completed.

The following tables show the number of prisoners confined in the Penitentiary during the years 1883–'84:

Prisoners on hand Dec. 31, 1882		1,343
Prisoners received in 1883		590
Prisoners received in 1884		680
Total		2,613
Prisoners discharged in 1883	525	
Prisoners discharged in 1884	555	
		1,080
On hand Dec. 31, 1884		1,533

In 1881 the daily average was 1,205; in 1882 the daily average was 1,318, showing an increase of 113 in 1882 over 1881, 125 in 1883 over 1882, and 95 more in 1884 than 1883. The daily cost per capita for maintenance for 1883–'84 was 22$\frac{8}{10}$ cents; guarding, 8$\frac{7}{10}$ cents; total, 31½ cents.

Public Schools.—The amounts to the credit of the permanent State school fund are:

Certificate at 6 per cent	$2,909,000 00
Certificate at 5 per cent	222,000 00
In treasury	1,881 65
Total public-school fund	$3,132,881 65
University or seminary fund	508,000 00
Total	$3,640,881 65
County public-school fund	$2,934,253 28
Township public-school fund	3,347,260 11
Special public-school fund	130,487 87
Fines, penalties, forfeitures, etc	125,922 98
Total school funds of Missouri	$10,178,805 89

The statistics reported by county clerks for the year ending June 30, 1884, are:

	Male.	Female.	Total.
Number of white children	379,230	361,097	740,327
Number of colored children	22,225	22,570	44,795
Total	401,455	383,667	785,122

The statistics reported by county commissioners include these:

Number of white children of school age	734,624
Number of colored children of school age	48,954
Number of white children enrolled	501,821
Number of colored children enrolled	26,131
Average attendance	398,081
Number of teachers employed	13,226
Average salary of teachers	$47 75

In the State University there were during the year ending June, 1884, 563 students in attendance and 65 graduations. Up to December, 1884, about 500 entered. The average age is nineteen years and ten months, and it ranges from fifteen to thirty-five. Admissions are by examinations, regardless of age, and it is seldom that any one as young as fifteen can pass. The university is at Columbia, and has an agricultural and mechanical department. The School of Mines, at Rolla, is connected with it.

The normal schools are at Kirksville, Warrensburg, Cape Girardeau, and Jefferson City—the last, Lincoln Institute, is for the education of colored teachers. All are supported at the expense of the State. The students all pay an "incidental fee," except in the normal department of Lincoln Institute, where they are admitted free.

Lunatic Asylums.—Both the Fulton and St. Joseph asylums are now overcrowded. Each of them has 100 more patients than it can properly care for. In addition to this there are about 2,500 insane in the State outside of asylums, confined in jails and poor-houses, or not cared for at all. The capacity of the several asylums is as follows: St. Louis, 300; Fulton, 450; St. Joseph, 250; total, 1,000. They are attended as follows: St. Louis, 900; Fulton, 550; St. Joseph, 270; total 1,720.

Deaf and Dumb Asylum.—In the Deaf and Dumb Institution at Fulton, 284 pupils have been taught within the past two years. There are 208 now in attendance. The building has been greatly enlarged and improved.

School for the Blind.—The economy of the management is shown by the fact that an unexpended balance of $11,218.44 remains of the amount appropriated by the last General Assembly. An appropriation of $52,000 is asked for the years 1885–'86 as follows:

For maintenance	$36,000
For pay of officers, employés, etc.	16,000

This is $5,000 less than the sum appropriated for the last two years. During the years 1833–'84, 147 pupils were in attendance, which is an increase of 34 over the years 1881–'82.

Institutions recommended.—The Governor recommends the establishment of an Inebriate Asylum and a Reform-School. He also recommends legislation relative to insane criminals.

Temperance.—The Governor suggests that the "Downing" law should either be repealed or so amended as to make it applicable in its provisions to every part of the State alike. This law has been, in part, made inoperative in the city of St. Louis, by the presumed existence and operation of the act of 1857, so declared by a court, and the authorities of that city acquiesced in the ruling. He thinks the Downing law has already accomplished much good, and can be made much more effective with certain amendments. In 1880 there were 3,042 licensed dram shops, 127 wine and beer saloons, and 90 drug-stores retailing liquor under the then existing license. The State license, together with the ad-valorem tax on the liquor sold by the saloons, amounted to $157,916, and county license and tax to $296,970, a total of $458,896. The tippling-houses increased in number in the State between 1880 and the time this law became operative. This law has reduced the number of dram-shops within the first year of its operation from 3,601 to 3,150, a decrease of 457, or 12 per cent., and has reduced the number of places of strong drink from 8,469 to 2,115, over one third. There has been an increase of 903 wine and beer saloons under this law. While the revenues of the counties have been largely increased under this law, those of the cities, towns, and State have been much reduced. The county revenue from saloon licenses has been increased from $358,000 to $1,164,000, an increase of $806,000 within the first year. The State revenue from that source has been diminished $85,041.06 within the first year. Heretofore the county courts have exacted the minimum license, $550, from those seeking the privilege of trade. The maximum price is $1,200.

Judicial.—The Governor says: "Since the creation of the Supreme Court Commission by the last General Assembly, it has done excellent work, fulfilling the expectations of the court and the friends of the respective commissioners. The Supreme Court is still much behind in its work, and I think the commission should be continued for two years more. By the adoption of the last constitutional amendment, the St. Louis and Kansas City Courts of Appeals have jurisdiction in all cases of misdemeanor."

Political.—Two Democratic State Conventions were held, one in St. Louis on the 24th of June for the choice of delegates to the National Convention of the party, and the other in Jefferson City on the 12th of August to nominate candidates for State officers and Presidential Electors. The following is the State ticket nominated: For Governor, John S. Marmaduke; Lieutenant-Governor, A. P. Morehouse; Secretary, Michael K. McGrath; Treasurer, James M. Siebert; Auditor, John Walker; Attorney-General, D. G. Boone; Land-Register, Robert McCulloch; Railroad Commissioner, W. G. Downing; Supreme Court Judge, F. M. Black.

The Republicans and Greenbackers formed fusion tickets. Their nominees for State officers were the following: For Governor, Nicholas Ford; Lieutenant-Governor, H. M. Starkloff; Secretary of State, Paul J. Dixon; State Treasurer, J. C. Thompson; Auditor, Jacob Sands; Attorney-General, David Murphy; Supreme Judge, David Wagner; Register of Lands, G. Bond; Railroad Commissioner, J. Bates.

There was also a Prohibition ticket in the field. The vote for Presidential Electors on the 4th of November was as follows; Democratic, 235,988; Republican, 202,929; Prohibition, 2,153. For Governor, the vote was: Democratic, 218,885; Fusion, 207,939; Prohibition, 10,426. The entire Democratic State ticket was elected. Republican Congressmen were chosen in the Fifth and Thirteenth Districts, and Democrats in the other twelve.

The Legislature of 1885 consists of 25 Democrats and 9 opposition in the Senate, and 99 Democrats and 41 opposition in the House. The constitutional amendment relating to the judiciary was adopted by a vote of 148,730 to 144,174. The one relating to taxation was defeated by a vote of 148,762 to 128,296.

MONTANA. Territorial Government.—The following were the Territorial officers during the year: Governor, John Schuyler Crosby, succeeded by B. Platt Carpenter; Secretary, J. S. Tooker; Auditor, Joseph P. Woolman; Treasurer, D. H. Weston; Superintendent of Public Instruction, Cornelius Hedges; Attorney-General, William H. Hunt. Judiciary, Supreme Court: Chief-Justice, D. S. Wade; Assistant Justices, W. J. Galbraith and John Coburn.

General Condition. — With the exception of eight miles of narrow-gauge railroad from Stewart to Anaconda, on the Utah and Northern, there was no railroad-building in the Territory within the year. In the early spring the reported gold discoveries of the Cœur d'Alene mines created a rush to that portion of Idaho adjacent to Montana's western border, and several of the outfitting points were within Montana. Making all deductions for the departure of those who had come only for a temporary purpose, still there was a steady gain in the population during 1884. In spite of the depression throughout the country, Montana progressed in every direction. Her cattle are estimated to number more than 900,000, and horses and sheep have multiplied proportionately. The mines continue to pour forth in increasing value their precious metals. During the year the largest smelting-works for the reduction of copper anywhere to be found in the West were completed. The work of building has never stopped for a day, and more substantial business blocks, elegant and commodious school-houses and churches, and private residences have been erected in Montana during the year past than in any former period. The assessment list will show between fifty and sixty millions of taxable property.

Stock.—"This Territory," remarks the Governor, "is not to be judged by the amount of stock exported, either for meat or for other purposes. Though Montana continues to furnish in large numbers cattle, horses, and sheep for stocking the vast pasture-lands of the Dominion provinces to the north, and supplies no insignificant portion of the beef-cattle for the Chicago market, she is, and for some time will continue to be, an importer rather than an exporter of stock. This must continue till our rich and extensive pasture-ranges are stocked up to their natural average capacity. Brood-mares, young cows, and ewes are worth relatively more in Montana than elsewhere in the country. It is estimated that above 100,000 head of improved breeds of cattle have been shipped and driven into the Territory during the past year, and by the 1st of December about 60,000 will have been exported. Sheep are brought from Washington Territory and Oregon by car at a cost of 50 cents a head, and in so short a time that no delay is needed to feed and water them. In the same way and with equal advantage young cattle and horses are brought in from the States. The worst difficulty that our stock-growers, particularly horse and cattle men, have thus far had to contend with is the loss by stealing and wanton killing of cattle by white and red thieves. Horse-stealing had become consolidated into a large and well-organized industry in the sparsely settled northern and eastern portions of the Territory. It became necessary to organize and resort to extra-legal means to suppress this dangerous element. The laws were utterly powerless, the thieves with their plunder would escape into the vast Indian reservations, or cross the northern frontier-line to be safe from reach before pursuit even began. There have been some applications of hemp and lead during the year by the 'cowboys,' as our stock-herders are called, that are to be deprecated, provided there were other effectual protection and redress at hand. Roving bands of Indians, Crows and Blackfeet, have during the whole season been roaming among the thinly scattered settlements along the Musselshell and other tributaries south of the Missouri, pretending to be in search of horses stolen by other Indians, but taking horses wherever opportunity presented, and subsisting wholly upon cattle of the settlers, which they have killed by hundreds."

Indian Reservations.—Alluding to the reservations, the Governor uses this language:

> These vast reservations no longer afford any means of support to the Indian in his traditional mode of life. The large game is gone. The Indians are in many cases driven to kill the white man's cattle or starve. The situation of the Piegans and Blackfeet has been most deplorable, as reported by me in detail at different times; hundreds died from starvation. The reduction of their reservations to a proper size in alternate sections would give the means to provide for their physical well-being and would further provide for their education in the useful arts, so that they might, in the course of time, become wholly self-supporting by raising cattle, sheep, and horses, for which their reservations are adapted.
>
> The recent reports of the discovery of gold-mines in the Little Rockies, an outlying spur, situate about one hundred miles southeast from Fort Assiniboin, and not more than fifteen miles distant from the Missouri river, lying in the very heart of the great northern reservation, is attracting hundreds from all parts of the Territory and beyond. I am of the opinion that instead of keeping these Indians shut up on reservations, which necessarily isolates them from civilizing influences, they should be brought into direct contact with the modes of life of the frontier farmer and stock-grower. I do not believe, in the present condition of most of our tribes in the Northwest, that the Indian should be treated *en masse*, but as individuals, providing each one with a homestead, which should be inalienable for a term of not less than twenty years.

Finances.—The Treasurer's report for the year 1883 shows that in accordance with an act approved Jan. 30, 1883, funds were transferred from the warrant fund, and all uncalled Territorial bonds, amounting to $45,000, were redeemed and canceled on March 1, 1883, thus extinguishing all registered indebtedness of the Territory. Notwithstanding a large increase in Territorial expenditures during the year, and the transfer by the Legislative Assembly of 87½ per cent. of the former Territorial portion of license revenues to the counties, there was an increase of receipts of revenue over 1882 of $7,852.43, and a surplus in the treasury of $26,508.59 over all registered liabilities.

The expenses of 1884 exceeded the revenue by $28,558.77. This excess is partly due to the Constitutional Convention.

The balance in the general warrant fund, Dec. 31, 1882, was $61,514.42; receipts, $99,-121.72; paid to redeem bonds, $45,000; for other purposes, $85,494.41; balance, Dec. 31, 1883, $30,141.73. There were also paid from other funds, chiefly to redeem bonds, $28,-011.90. The amount of revenue proper collected in 1882 was $90,863.47; in 1883, $98,-715.90. The surplus in the treasury over registered liabilities Jan. 1, 1883, was $14,005.90; Jan. 1, 1884, $26,508.59. The aggregate net indebtedness of counties March 1, 1882, was $658,974.32; March 1, 1883, $843,897.82.

The assessed value of property in 1880 was $18,609,802; 1881, $24,040,806.30; 1882, $33,-211,319.12; 1883, $44,698,461.28. The following are the items of assessment for 1883:

Acres of land and improvements, 1,149,888·79, $3,111,877.01; town lots and improvements, 16,887¼, $6,898,478.45; horses, 89,311, $3,601,518; mules and asses, 3,126, $219,813; sheep, 465,667, $1,328,802.50; cattle, 376,811, $8,222,154; hogs, 10,037, $63,428; wagons and carriages, 10,412, $598,851.25; watches and clocks, 4,516, $116,563.49; pieces of jewelry and plate, 77, $42,870; musical instruments, 708, $79,650; shares of stock, $982,350; merchandise, $3,939,930; capital invested in manufactures, $1,300,480; moneys and credits, $4,780,184.56; household furniture, $127,953; all other property, $4,424,613.02; total, $44,834,461.28; less reduction by Board of Equalization and widows' exemption, $136,000; total, $44,-698,461.28.

Education.—The following is a general comparative statement for two years:

ITEMS.	1882.	1883.
Number of school districts	155	180
Number of schools	189	208
Number of male teachers	64	75
Number of female teachers	127	151
Whole number employed	191	226
Number of school-census children, 4 to 21 years of age	10,482	12,485
Number attending school	6,054	6,928
Average length of school, in days	125	100
Per capita of county tax on school-census children	$8 92	$8 08
Average rate of tax for schools	3·7 mills	3·8 mills
Number of school-houses	143	160
Total amount raised for schools	$104,127 64	$122,111 94

Statistics.—The following statistics for 1883 are compiled from abstracts returned by the county assessors: Births, 967; deaths, 389 natural and 32 violent; wheat raised, 556,076 bushels, on 24,528⅛ acres; rye, 2,215 bushels, on 72 acres; barley, 62,589 bushels, on 2,060½ acres; corn, 6,604 bushels, on 265 acres; oats, 2,023,992 bushels, on 58,788¾ acres; peas, 38,-415 bushels, on 1,497¼ acres; potatoes, 412,-681 bushels, on 2,902⅝ acres; buckwheat, 328 bushels, on 12⅛ acres; cabbage, 1,242,710 pounds, on 129 acres; rutabagas, 1,020,035 pounds, on 120¼ acres; turnips, 223,500 pounds, on 31 acres; onions, 496,380 pounds, on 106⅜ acres; hay, 187,802 tons, on 128,772 acres; number of milch-cows, 8,377; pounds of butter and cheese, 593,384; sheep shorn, 364,390; pounds of wool, 2,157,768; number of ranches, 4,660; bushels of apples, 1,173; gross receipts of placer-mines, $457,655.04; number of quartz-mills, 50; gross receipts of same, $3,864,848; grist-mills, 19, producing 152,600 sacks of flour; saw-mills, 99, turning out 77,736,000 feet of lumber; coal-mines, 17, yielding 78,600 bushels of coal; reduction-furnaces, 37, producing 27,111,677 pounds of bullion, valued at $3,430,305.83; land cultivated, 90,518⅝ acres.

The totals of live-stock in 1884 reported to the Commissioner of Agriculture by his statistical agent for the Territory, are as follow:

NAME.	Number.	Value.
Horses	105,880	$3,439,075
Mules and asses	2,797	158,785
Milch-cows	22,100	1,060,808
All other cattle	584,557	20,459,895
Sheep	624,596	1,599,889
Swine	11,030	281,585
Total	1,350,910	$26,943,119

The yield of gold, silver, copper, and lead, for the last three years, has been reported by the Superintendent of Wells, Fargo & Co., as follows: 1882, $8,004,000; 1883, $9,879,000; 1884, $11,862,000.

The shipments of wool in 1883 amounted to 848,225 pounds; in 1884, to 1,258,034 pounds. Of hides, pelts, and furs, 427,000 were shipped in 1883, and 863,218 in 1884; of cattle, 30,-418 head in 1883, and 85,300 in 1884.

Constitution.—The Constitutional Convention, consisting of 26 Democrats, 17 Republicans, and 2 Independents, met on the 14th of January and adjourned on the 9th of February. It framed a Constitution, which, on the 4th of November, was ratified by a popular vote of 15,506 against 4,266. Provision was made by the convention for the submission of the Constitution when adopted to Congress, and for asking the admission of the Territory as a State under it. The prominent features of this instrument are given below:

It guarantees perfect freedom and toleration, without discrimination on account of religion, but this does not extend to or include the practice of polygamy. It was deemed prudent to leave no room for misconstruction upon this point.

The present grand-jury system is retained, with the modification that it shall consist of twelve men, nine of whom may find a "true bill." The right is reserved to the Legislature to abolish the grand-jury system. Two thirds of a jury may render a verdict in civil causes. In civil causes and misdemeanors the jury may consist of less than twelve.

State Senators are elected for four years, Representatives for two years, and provision is made that one half the Senate shall be chosen biennially. Short sessions are provided for; hence the limitation of forty days, in all sessions after the first, which shall not exceed sixty days. No special law can ever be passed.

when a general one could be made applicable, and appropriations to denominational or sectarian institutions are prohibited. Neither the faith of the State, nor of any county, can be pledged to contract or pay any debt for railroad purposes, nor can any liability or obligation of any person or corporation be extinguished, except by payment into the proper treasury.

The executive department is made to consist of a Governor, Lieutenant-Governor, Secretary of State, State Auditor, State Treasurer, Attorney-General, and Superintendent of Public Instruction, whose tenure of office is two years. A Supreme Court of three judges is created, having appellate and supervisory jurisdiction only, and sitting twice a year.

The judges hold their offices for six years, and are elected by the people. District Courts are provided with substantially the same jurisdiction as they now have in the Territory. Four districts are provided, but the Legislature has power to increase the number to meet the necessities of the people. County courts are substituted for the present probate courts, with enlarged jurisdiction. Justices of the peace are provided for, and the right to create police and municipal courts is vested in the Legislature. All judges are required to have resided in the State or Territory at least two years prior to their election.

In addition to the usual qualification of age, a voter must either be a citizen of the United States or have declared his intention to become such not less than four months before he offers to vote, and must have resided in the State six months. The Legislature is required to pass all needful laws for the preservation of the sanctity of the ballot. Suffrage is likewise extended to women, so far as relates to school-district elections, and women may hold school offices, provided the Legislature shall enact laws to that effect.

Educational, reformatory, and penal institutions are amply provided for, as well as those for the benefit of the insane, blind, deaf, and mute. In order that the seat of government may be permanently located, provision is made for submitting that question to the electors of the State at the general election next ensuing after the first session of the State Legislature. The Legislature is prohibited from making any appropriation for Capitol buildings or grounds until after the seat of government shall have been permanently located, and no appropriation for such purpose is authorized before the year 1900, unless the proposed appropriation shall have been first submitted to the electors of the State and the approval of a majority thereof obtained.

This Constitution commits the State fully and unequivocally to the perpetual maintenance of public free schools; opens the school-doors unconditionally to the admission of all between the ages of five and twenty-one years. Three months' school is the minimum allowed to any school district in the State. The school lands are carefully provided for, the object being to secure the utmost, both for principal and interest, with a full guarantee by the State against loss or diversion of any part thereof.

By the provision relating to revenue and taxation, the value of the surface improvements and other property, and the net proceeds derived from operating a mine, are made proper subjects of taxation, the mine itself being alone exempt. The system embodied in this Constitution is similar to that of Nevada and Colorado, where it is claimed every mine that is worked yields its just proportion of revenue to the county and State.

The rate of taxation for State purposes can never exceed three mills on the dollar; and whenever the taxable property amounts to one hundred million dollars, the rate can not exceed two mills on the dollar; and whenever the taxable property amounts to three hundred million dollars, the rate shall not thereafter exceed one mill on the dollar, unless a proposition to increase the rate, specifying the rate proposed, is first submitted to and approved by a majority of the voters of the State.

The article on public indebtedness commits the State, and every county, city, town, township, and school district, against lending the credit thereof, directly or indirectly, to or in aid of any person company, or corporation, for any amount or for any purpose whatever. Counties are also prohibited from contracting any indebtedness, for any purpose, beyond five per cent. of the value of their taxable property. A like provision is made concerning cities, towns, townships, and school districts, limiting their power to create any indebtedness beyond three per cent. of their valuation.

The Constitution subjects railroad, transportation, and express companies to legislative control. The power to regulate and control by law the rates of charges for the transportation of passengers and freight by such companies, as common carriers from one point to another, within the State, is expressly asserted, and unjust discrimination in charges prohibited. All railroad, express, or other transportation companies, in existence at the time of the adoption of this Constitution, are prevented from having the benefit of any future legislation, until they shall have filed with the Secretary of State an acceptance of the provisions of this Constitution.

Stringent provisions are made against railroad and other transportation companies issuing, or public officers receiving, any free pass over such roads.

Political.—A Republican Territorial Convention met in Bozeman on the 2d of May, and chose delegates to the National Convention of the party. A second convention of the same party was held in Helena on the 27th of September, which nominated Judge Hiram Knowles for delegate to Congress. The following are among the resolutions adopted:

That the crime against the suffrage perpetrated by the Democratic party, in its name and for its benefit, in the Territory of Montana in 1882, whereby the verdict of the *bona fide* electors of this Territory expressed at the polls was reversed, for its shamelessness was unparalleled since the days of ballot-box stuffing in the Territory of Kansas, and as that crime drove from power the political party that refused to condemn it, so this iniquity should inexorably excommunicate the political party which has condoned, if not approved it, from political power; that the protection of the ballot is the security of democratic government, and we demand a registration law which shall ascertain and protect every citizen's right to cast his ballot once at an election, and to have the same counted in determining the result.

That equality of taxation, according to its value, of all property within our limits, is an elementary principle of republican government; that the exemption of large and valuable properties and franchises from taxation is a practice to be regulated, condemned, and terminated; and to the end that all property within the limits of the Territory of Montana may share in the burden of government alike, we cordially recommend that, under the present, or some better Constitution, to be speedily framed, the people of the Territory obtain admission into the Union as a State.

That we demand such legislation of Congress as will cause an early and complete survey of all lands granted to railroads within this Territory, and the completion of the title of them to such an extent as that the said property may be taxed precisely as is other property in Montana.

The Democratic Territorial Convention met at Deer Lodge on the 25th of September, and nominated Joseph K. Toole for delegate to Congress. At the election, on November 4, Toole was successful, receiving 18,584 votes against 18,385 for Knowles. The Legislature of 1885 consists of 5 Republicans and 7 Democrats in the Council, and 15 Republicans and 9 Democrats in the House.

Counties and County-Seats.—The following is a list of the counties and county-seats:

COUNTIES.	COUNTY-SEATS.
Beaverhead.............	Dillon.
Choteau.................	Fort Benton.
Custer..................	Miles City.
Dawson..................	Glendive.
Deer Lodge............	Deer Lodge.
Gallatin.................	Bozeman.
Jefferson...............	Boulder Valley.
Lewis and Clarke......	Helena.
Madison................	Virginia City.
Meagher................	White Sulphur Springs.
Missoula................	Missoula.
Silver Bow.............	Butte.
Yellowstone............	Billings.

Tax Exemption.—Section 2 of the charter of the Northern Pacific Railroad Company is as follows:

> That the right of way through the public lands be and the same is hereby granted to said Northern Pacific Railroad Company, its successors and assigns, for the construction of a railroad and telegraph, as proposed, and the right, power, and authority is hereby given to said corporation to take from the public lands, adjacent to the line of said road, material of earth, stone, timber, and so forth, for the construction thereof. Said way is granted to said railroad, to the extent of two hundred feet in width on each side of said railroad, where it may pass through the public domain, including all necessary ground for station buildings, workshops, depots, machine-shops, switches, side-tracks, turn-tables, and water-stations, and the right of way shall be exempt from taxation within the Territories of the United States.

The construction given to the foregoing provision of the act of Congress by the best lawyers is that the right of way of two hundred feet on each side, with necessary depot-grounds, etc., was a grant, and that all buildings and fixtures of every kind thereon attached to the realty, and are exempt from taxation. This question arose within a few months after the railroad entered the limits of Montana, in the case of the Northern Pacific Railroad Company against Willis W. Carland, Treasurer of Custer county, which was decided by the Supreme Court of the Territory, at the January term, 1884. In that decision the Supreme Court, in effect, decided that none of the property of the Northern Pacific Railroad Company, its right of way, or anything attached thereto, is taxable, or, in other words, the only property of the railroad company that is, under its charter, taxable within Montana, is the personal property that may come to the knowledge of the assessor; that the right of way, including lands for necessary depots, machine-shops, etc., also station buildings, workshops, switches, side-tracks, turn-tables, and water-stations, is exempt from taxation within the Territory of Montana. It is the opinion of some of the ablest lawyers of the Territory that, when Montana becomes a State, the property of the Northern Pacific Railroad Company can be taxed like the property of an individual.

MONTENEGRO (Czernagora, "Black Mountain"), a principality in eastern Europe. The government is an absolute monarchy. The legislative and executive powers, and the control of the revenue, remain practically in the hands of the Prince, though organic statutes of 1852, 1855, and 1879 introduced the representative principle in the form of a legislative body, called the State Council, of eight members, one half elected by the male inhabitants who bear arms or have done military service. The throne is hereditary by male primogeniture in the family of Petrovich Njegos, who liberated the country from the Turks, and was proclaimed Vladika, or Prince-Bishop, in 1697. Danilo I, who succeeded his uncle, Prince Peter, the celebrated poet and reformer, in 1851, abandoned the title of Vladika, and assumed that of Hospodar. He was assassinated, Aug. 18, 1860, and was succeeded by Nicholas I, the present reigning Prince. The inhabitants of Montenegro are divided into forty tribes, each governed by elected elders and a chief, called the Knjas, who acts as judge, and in time of war is the military commander. By the administrative statute of 1879, the country was divided into eighty districts and five military commands. There is no standing army, except the Prince's body-guard of one hundred men; but in case of war all Montenegrins are soldiers from the time when they can first bear arms until they have no more strength.

The Ministry.—The Ministry of Justice was vacant in 1884. The Minister of Foreign Affairs is S. Radonich; the Minister of the Interior, B. Petrovich; the Minister of War, J. Plamenatz; the Minister of Education, the Metropolitan Monseigneur Ljubicha. The Director of Finance, who does not sit in the Council of Ministers, is M. Matanovich. The Council of State, composed of eight members, is presided over by Petrovich Njegos.

Area and Population.—The area of the principality is about 3,470 square miles. The population is officially estimated at 236,000.

The exports are estimated at 2,000,000 florins. The revenue is about 445,000 florins, of which 125,000 come from direct taxes, 200,000 from the salt monopoly, and 100,000 from duties on spirits and tobacco. The Prince has a civil list of 9,000 ducats.

Political and Social Conditions.—Various improvements, carried out under the paternal direction of the ruler, indicate steady progress in the little principality. The towns of Niksich and Podgoritza have been rebuilt. A railroad from Plovnitzi to Lake Scutari is projected, and the plan is entertained of extending this, the first Montenegrin railroad, which will possess a certain strategical importance, through to Niksich. The regulation of the Turkish boundary has made no progress, notwithstanding the friendly manifestations of the Sultan. The Turkish commissioners raised difficulties at every step, and interrupted the work, to wait for the answer of the Constantinople authorities. The Prince desires the powers to appoint a European delimitation commission to settle definitely the Montenegrin boundary question.

The re-establishment of cordial relations between Austria and Russia was reflected in a marked change in the attitude of Montenegro toward Austria, and in humble apologies in the official journal at Cetinje for breaches of international comity during the Herzegovinian disturbances. Energetic measures were taken against fugitive insurgents from Bosnia and the Herzegovina. They were kept under surveillance in the district of Dulcigno, as far as possible from the scene of their former activity. A proclamation was issued, warning the exiles that if any disturbances occurred on the Montenegrin border, or in the lands administered by the Austro-Hungarian Government, the authors would be delivered up to the Austrian authorities. Many of the refugees from Crivoscie were brought to Cattaro, whence they could return to their deserted farms. There they were prosecuted before the proper tribunal and subjected to light sentences, after which aid was extended to them so that they could resume agricultural operations on their old lands. One consequence of the insurrection in Crivoscie and the Herzegovina was the elaborate fortification of the Austrian frontier. Lieut.-Gen. von Salis Soglio, the chief of the Austrian engineer service at that time, was intrusted with the construction of a line of forts which would make an attack from the Montenegrin side impossible. While the forts were building, Montenegro protested and endeavored to obtain a veto from the European powers. The chain of forts is now completed, and confines the principality in the boundaries assigned to it by the powers like a wall. The Czernagorans are, therefore, powerless to annoy or injure Austria in the future, while in times of famine or pestilence, which occur periodically in their mountain-land, they will be largely dependent on the Austrians. Since Russia has ceased to pursue political aspirations in this part of the Balkan Peninsula, the hopes which the Montenegrins entertained of leading the south Slavs and becoming the nucleus of a great state are disappointed. Servia has obtained a long start in the race for primacy, particularly since the completion of the Belgrade and Nish Railroad. The Montenegrins are now obliged to follow their Servian brothers in seeking favor with the Hapsburg monarchy, and find that their traditional hostility to the detested "Swabi," which they accounted a great advantage over the Servians in the eyes of the south Slavs, is now a political disadvantage. The appeal of the Czernagorans to the heroic past, when the south Slavs were united under their lead, and their mountain nest was the seat of a national government that included all the branches of the race that now aspire to be again amalgamated into a free nation, does not impress the inhabitants of the other parts of the Balkans like the material progress now visible in Servia.

MORAVIANS. The Triennial Synod of the Northern District of the American Province of the Moravian Church met at Lititz, Pa., May 21. Bishop Edmund de Schweinitz was elected to preside. A salutatory letter from the Unity's Department at Berthelsdorf, Germany, and a letter from the Provincial Elders' Conference of the British Province, were read, and suitable replies were directed to be returned to them. The report of the Provincial Elders' Conference showed that the churches had enjoyed an increase of 418 communicants and 227 members, notwithstanding the secession of an entire church of 483 members; and that the total number of communicants was 8,640, and of members 14,583. Adding the churches of the Southern District, the whole number of communicants in the American Province was 10,032, and of members, 16,822. The financial condition of the Province had been much improved under a new system adopted by the previous Synod. The scheme for changing the titles in church property from fee-simple ones to titles in trust was being carried out. A legacy had been left for the Theological Seminary by Mrs. E. A. Yoder, from which, by the plan of settlement that had been adopted, the sum of $25,299 would eventually be realized. The total amount of the Permanent Church Extension fund was returned at $19,578. The Board of Church extension had obtained a decree of incorporation. The Board of Home Missions reported upon the condition of twenty-nine missions, with which were connected 3,577 members, 1,775 of whom were communicants. The Committee on the Bohemian Mission reported that the church of that mission had been recognized by the Austrian Government, and the great obstacle in the way of its progress had been thus removed. The principal centers of the mission were at Pottenstein and Landskron. A branch of the mission had been established in the Russian province of Volhynia. Three missionaries were employed, with three evangelists, two assistant missionaries, one teacher, and four colporteurs; and there were connected with the mission four congregations, four stated preaching-places, five chapels, an orphan-house with twenty-seven children, an industry (button-factory) for poor women, and 282 members. The churches of the Northern and Southern Districts of the American Province had contributed to the support of this mission, during three years, $4,107. The commission that had been appointed by the Synod of 1881 to consummate a union with the Southern District reported that the effort had failed. It appeared that a majority of the Southern ministers and churches were opposed to the union. Petitions were ordered inserted in the Litany of worship for deliverance "from needless perplexity" and "from the unhappy desire of becoming great." A gift by Mr. William G. Malin, of a valuable library of Moravian literature, was acknowledged, with the thanks of the Synod.

MOUNTAIN EXPLORATION, RECENT. The Appalachian Mountain Club.—The exploration of the mountains of the United States is promoted by the Appalachian Mountain Club, which furnishes in its corporate and field meetings and in its semi-annual journal, "Appalachia," means through which mountain-climbers may communicate their results to the public. The earliest mountain club in the United States whose history is recorded was the Alpine Club of Williamstown, Mass., which had nine members at its organization, and enrolled twenty-four members as its greatest number. It made excursions during the next three years to the mountain-regions near Williamstown and other places in New England, including one to the White mountains. Formal records of its excursions ceased to be kept after 1865, and the majority of its members have removed from Williamstown, although occasional reunions are still held there. The Appalachian Mountain Club was formed in February, 1876, by the association of 39 members, and was incorporated in March, 1878, when it had 199 members, of whom 150 became corporate members. Till Jan. 1, 1884, 790 persons had been enrolled as corporate members of the club, of whom 579 still continued to be members, and 51 other persons had been enrolled as non-corporate members. This club is interested in mountain exploration everywhere, and contemplates, as its membership is enlarged and extended, including all the mountain-regions of the United States within its field of work. As yet, most of its members being residents of New England, or summer visitors to the New England States, most of its work has been accomplished in the White mountains and the Alpine regions of the States adjacent to New Hampshire. A list of altitudes in New Hampshire was published in 1880, and a "Table of less visited Peaks in White Mountains" was begun, which has been continued and extended from time to time. This list included summits concerning which no published accounts existed at the time of the formation of the club, many of which were wholly unexplored, and some unnamed. At the end of 1882, of the forty-seven mountains recorded on it, all but thirteen had been explored and described. The list has since then been further reduced considerably, but other less prominent mountains have been added to it, leaving still abundant work to be done. In connection with this work may be mentioned the map and list of altitudes of the Catskill mountains published by Prof. Guyot in 1880. In addition to the mountain exploration, the Appalachian Club has encouraged the making of roads, the cutting of paths, and the planting of landmarks in the White mountains and their gorges for the aid of excursionists, thus greatly enlarging the field of adventure accessible to ordinary tourists. Much of this work has been done at individual expense and gratuitously, but during the first eight years of its existence the Appalachian club, in a total expenditure of $5,980, devoted $495 to purposes of "improvement and exploration." In 1881 the attention of the club was called to the condition of the "Old Man of the Mountain," the forehead of which was believed to be in danger of injury from frost, and provisions were made to have everything feasible done to protect it. At the October meeting in 1882, Major Jedediah Hotchkins gave an address on the Appalachian mountains of the Virginias, explaining in detail the profile of the country from the sea to the mountains, and showing that the essential formation of all parts of the Appalachian system might be found in Virginia. He referred to the parallelism and great length of the ranges there, as compared with the mountains of New England; and, describing the Shenandoah valley, he explained the effect of its configuration in producing certain incidents in the war of the rebellion. At the June meeting in 1883, a report was presented, calling attention to the various kinds of aid that could be rendered by those members of the club who have had no training in scientific work; showing that in hydrography, especially, much remained to be done, and that members could render valuable assistance by making notes of their explorations, by sketching ridges and streams, and by criticising and correcting existing maps. The attention of the club was called in 1884, by Prof. Pickering, to a statement that had been made by Prof. Cleveland Abbe, of the United States Signal Service, that the rainfall on the summit of Mount Washington was about twice the total fall at adjacent points in New England, and that observation at different heights on the side of the mountain showed that the amounts varied as the heights. In order to further the study of the "Effect of Mountains on Rainfall," it was desired to obtain regular observations at different points in the White mountain region; and it was suggested that the members of the club endeavor to interest the residents of the region on the subject.

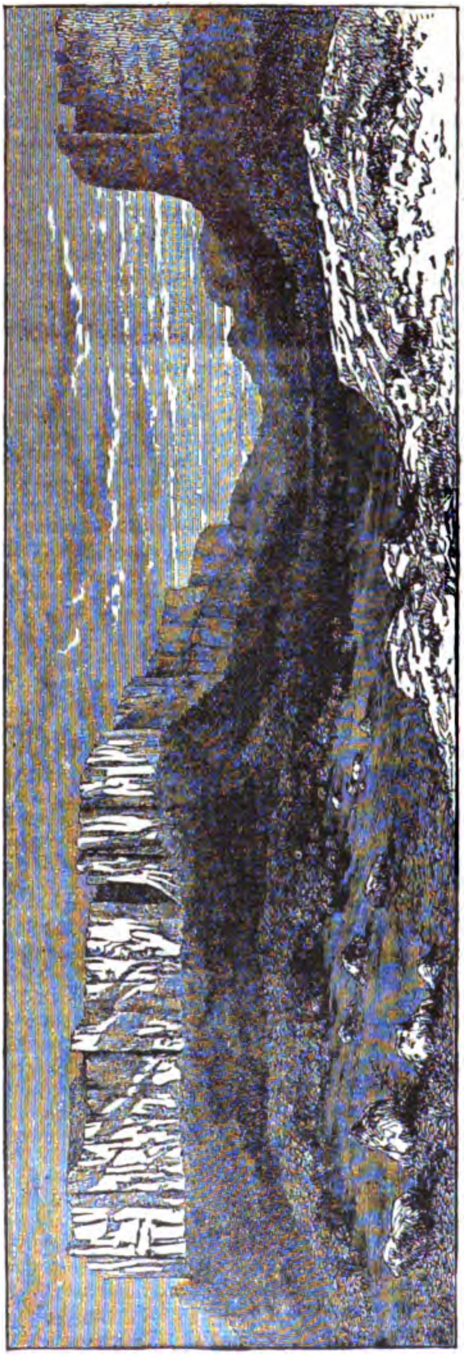
The Appalachian Mountain Club is in correspondence with a number of similar organizations and geographical societies elsewhere, among which are the "Gesellschaft für Erdkunde," Berlin; the "Société de Geographie Commerciale de Bordeaux"; the "Club Alpin Suisse"; the "Club Alpin Française"; the "Deutscher und Oesterreichischer Alpenverein"; the "Société Khediviale de Géographie," of Cairo, Egypt; the "Club Alpino Italiano"; the "Società degli Alpinisti Tridentini"; the "Norske Turistforening"; the "Oesterreichischer Alpen Club"; the "Oesterreichischer Touristen Club"; the "Associació d'Excursions Catalana"; the "Siebenbürgischer Karpathenverein"; the "Società Alpina Friuliana"; the "Imperial Russian Geographical Society"; the "Kaiserliche Königliche Geographische Gesellschaft"; the "Royal Geographical Society"; the "Sociedade de Geographia," of Lisbon; the "Société Royale de

Geographie d'Anvers"; and the "Verein für Erdkunde zu Leipsig."

Having been invited to take part in the formation of a union of the principal Alpine clubs of Europe and America, the Appalachian Club has replied "that, inasmuch as, if the union were established, the meetings would probably be continued year by year, it would not be convenient for this club to send delegates regularly on account of distance; but we should be glad to open relations with the union by correspondence, and to be represented occasionally by delegates, as opportunity might offer."

Prof. Langley's Observations on Mount Whitney.—Prof. S. P. Langley, of Allegheny Observatory, spent two months in the summer of 1881 on the slope of Mount Whitney, in California, about 3,000 feet below its summit, in making observations on solar heat. At this height, on screening the sun with a near object, he perceived that the sky did not maintain the same violet blue up to the sun, but that a fine coma was to be seen about it of about forty diameters. This was found by telescopic observation to be composed of motes in the sunbeam, between the diffracting edge and the observer's eye. This result was considered interesting, as showing that the dust-shell, which is supposed to encircle our planet, exists at an altitude of at least 13,000 feet, and under favorable conditions for the purity of the atmosphere. Mr. Clarence King believes that the dust above the Sierra Nevadas has been borne across the Pacific, and owes its origin to the loess of China. The Peak of Mount Whitney would be wholly inaccessible on account of the precipitous character of its sides, were it not that earthquakes have rent the cliffs into fissures, through which bowlders and rocks from above have poured in past times to form *couloirs*. Through one of these *couloirs*, called "the Devil's Ladder," Prof. Langley ascended for half or three quarters of an hour to the mountain-slope, which he found still extremely steep, with the surface presenting an appearance as though stones had been hailed down upon it and covered it to an unknown depth. After nearly three hours, he reached the snow-field, which was about a quarter of a mile in length. The view from the summit "was of a horizon of tumbled mountains on the north, west, and south, not continuously white as in the Alps, for, though at a more than Alpine height, I saw only scattered snow-fields here and there. The air was cold, but not very chilly, and the sky of a deeper violet overhead than in the camp below. On the east side, the mountains descended in a series of precipices between 3,000 and 4,000 feet, to a little lake surrounded by a snow-field." Between the observer and the neighboring mountain-ranges was a "reddish sea of desert dust, 4,000 or 5,000 feet above the valley-floor, and almost covering the lower summits of the mountains." He must have been observing through this dust-ocean when at Lone Pine; yet even then the sky was considered of unaccustomed purity, and, Prof. Langley adds, "probably we observe under still worse conditions habitually when at home." Though the nearest wood was 3,000 feet below the summit of the mountain, or at the level of the observing-camp, Prof. Langley, in descending, noticed here and there parts of great tree-trunks, some eight or ten feet long, evidently very old, lying on the naked bowlders, without the slightest trace of vegetation anywhere, or any sign to show how they came there. He afterward found these isolated trunks elsewhere, and it seems clear to him that they are relics of a remote day when the forest grew 2,000 feet higher than it does at present, and are evidence of changed climatic conditions.

Attempts to explore Mount Roraima.—Roraima and its companion, Kukenam, are two mountains near the boundary-line between British Guiana and Venezuela, a few miles north of latitude 5° N., and near the sixty-first meridian west from Greenwich, of unique forms, and are regarded as among the most remarkable mountains in the world. They are described as being great tables of pink and white and red sandstone, interbedded with red shale, rising from a height of 5,100 feet above the sea-level, sheer 2,000 feet higher. Both are crowned with forests; from the summit of Roraima tumbles the highest waterfall in the world, 2,000 feet at one leap, and 3,000 feet more on a slope of 45° down to the bottom of the valley. The streams that issue from the summits of the mountains run to the Amazon, Orinoco, and Essequibo rivers. The plateau on the summit of either mountain has never been trodden by man; as all attempts to climb them have been prevented by the perpendicular elevation of the cliff that forms the last thousand feet of their height. The Indians have woven curious fancies of strange creatures that they imagine inhabit their elevated plains; and travelers believe that, isolated as their tops are, and have been, for an undetermined period in their history from all the rest of the earth, they may contain peculiar fauna and flora, perhaps identical with those of one of the past geological ages. Roraima was discovered and its base was first visited by Sir Robert Schomberg. Its base was again visited in 1869 by Mr. Barrington Brown, who has described his journey in his "Canoe and Camp-Life in British Guiana"; and a few years later by Mr. J. W. Boddam Whetham, author of "Roraima and British Guiana." Mr. Brown believed that the summit of Roraima was inaccessible except by balloon. Another attempt to explore Roraima and Kukenam has been made by Mr. James Whiteley, who, being engaged in the study of the birds of Guiana, made two excursions to the region in 1881-'82 and 1883. His route lay from the Bartica Grove mission on the Essequibo river up the Mazaruni and Carimang rivers and the Atapuran tributary of the latter,



KUKENAM, THE TWIN MOUNTAIN OF RORAIMA.

to the Yuruani river. During his second visit, in August, 1883, he made an excursion to the foot of the vertical part of Roraima, with a view to attempting the ascent. From his camp Mount Kukenam bore north, Roraima eight miles northeast, and Mount Waitipu, in the great bend of the Cotinga river, southeast by east. To reach Roraima it was necessary to cut a path through the extremely thick underwood of the forest covering the slope that appeared to have been formed by the rock breaking away from the sides of the mountain. The foot of the rocky cliff was reached at the height of about 7,000 feet above the sea, through a growth of brambles and prickly bromelias. The Indians had endeavored to cut a path toward a spot that Mr. Whiteley had observed on his journey where the vertical cliff had broken away, which seemed to give a faint promise of possibility of ascent, and to be the only spot where it would be worth while to look for a route, but they did not find the spot, and the explorer found his way stopped by an enormous rock, with precipices on both sides. Looking up, he could distinguish through the mist trees and shrubs growing on the top, and judged on boiling the thermometer that he was but a short distance from the main cliff. Mr. Whiteley also expressed the opinion that it seemed impossible to ascend either Roraima or Kukenam except with a balloon, and that this, on account of the direction of the prevailing wind, would have to be done from the south. It might be possible to ascend by forming scaffoldings, for which the forests of the slopes would furnish abundance of timber, but this would require much time and great expense. A mere ascent of the mountain for one or two days would not be of particular use to science, for it would take a long time to collect the natural objects in zoölogy and botany from the large extent of its surface. Accurate measurements of these mountains are wanting. Mr. Brown gives the length of Roraima as seven or eight miles; the mean of Mr. Whiteley's observations give 7,759 feet as its height.

Mr. E. F. Im Thurm has made another attempt to ascend Roraima. In December, 1884, he had ascended the slope to a height of 5,000 feet, "through a very garden of orchids and of most beautiful and strange plants." In a later dispatch, to Kew, Mr. Im Thurm announced that he had succeeded in reaching the top, and had found it to be a flat table-land about twelve miles long, covered with vegetation, and with streams of considerable size flowing from it.

Mr. Whymper in the Ecuadorian Andes.—Mr. Edward Whymper made an exploration of the Andes of the Republic of Ecuador in 1880, with especial reference to studying the practicability of living at great elevations. He ascended Chimborazo and remained in its neighborhood for four weeks; then, having made an unsuccessful attempt to ascend Illiniza from the south, he ascended Cotopaxi and remained on its summit for twenty-six consecutive hours; ascended Sinchulagua, Antisana, and two of the peaks of Pichincha; explored Cayambe, Sara-urcu, and Cotocachi; ascended Carihuairazo, and made a second ascent of Chimborazo, July 3. Till his own attempt was made, Mr. Whymper had never known of any traveler who was attacked with what is called "mountain-sickness," or the sense of exhaustion and feverishness that affects persons who ascend to great heights, who had deliberately contended with it and endeavored to overcome it. On the first day of his ascent of Chimborazo he reached a height of 14,400 feet. On the next day he reached 16,500 feet, and established himself at that height with great difficulty. The mules were driven till they were completely exhausted; and Mr. Whymper and his men, the Italian mountaineers, the Carrells, were prostrated, and became incapable of making the least exertion, feverish, suffering from intense headaches, and unable to satisfy their desire for air, except by breathing with open mouths. This produced great thirst, which they could not satisfy, partly because they could not get enough water, and partly from the difficulty of swallowing it. They could only sip, and when they undertook to drink and swallow, were forced to stop for breath and gasp. They were obliged to relieve themselves by frequent spasmodic gulps, such as fishes emit when taken out of the water. Mr. Whymper obtained relief by taking chlorate of potash; and in two or three days the party had become accustomed to the situation, and were able to continue their work. The next camp was pitched at a height of 17,400 feet. The more disagreeable symptoms had gone, but the explorers still found themselves "comparatively lifeless and feeble, with a strong disposition to sit down when we ought to have been moving." At length, having spent three days in moving their camp, and having passed a night at the highest station, they undertook the ascent to the summit. It was extremely difficult, and had to be made in the face of a high wind and through soft snow, in which the men sank to their necks, but it was accomplished, the measurement of the height was taken, and the return was safely made to the camp, all in one day. The most notable physical experience remarked during the ascent was the observation, at a height of between 18,400 and 19,500 feet, that the steps of the men got shorter and shorter, until at last the toe of one foot touched the heel of the one before it. Mr. Whymper's residence on Chimborazo extended over seventeen days. One night was passed at a height of 13,400 feet, ten nights at a height of 16,500 feet, and six nights at 17,300 feet. Besides the ascent to the summit, Mr. Whymper also went three times as high as 18,300 feet. When they quitted the mountain, all signs of mountain-sickness had disappeared, and none of it was experienced again till the party arrived at the summit of Cotopaxi. The camp on the latter mountain was placed at about 130 feet below the loftiest point, or at a height of 19,470 feet—the most elevated position at which any of the party had ever lived. They remained at that elevation for twenty-six consecutive hours, and felt slightly at first the effects of the low pressure, with the same symptoms that had been noticed on Chimborazo; and the good remedial effects of chlorate of potash were again remarked. The height of Chimborazo was measured on the first ascent, and again six months afterward. The mean of the two measurements was 20,517 feet. While Mr. Whymper believes that his experiments in enduring an elevation of from 16,000 to 18,000 feet for several hours determines the possibility, if necessary, of mounting several thousand feet higher (Mr. Graham reached nearly 24,000 feet in the Himalayas), they do not prove that any one could remain for a length of time at such an elevation as 24,000 feet; and that until this is done it is not probable that any one will reach, on foot, the summits of the highest known mountains.

All the mountains that Mr. Whymper visited in the great chain of the Andes were or had been volcanoes. Some of them, as was judged from the immense accumulations of glaciers that now covered them, must have been extinct for several centuries at least, and their rocks bore a close family resemblance to one another. While Tungaragua and Pichincha are frequently classed as active volcanoes, and are indeed not quite extinct, only two volcanoes in Ecuador—Sangai and Cotopaxi—possess such a degree of life as entitles them to be considered really active. They are seldom at rest; Sangai has been seen by few persons, and Mr. Whymper only saw it, early in the morning, when they were encamped upon Chimborazo at a height of 17,300 feet, though he frequently heard its detonations, also early in the morning. As seen from Chimborazo, Sangai presents the appearance of a regular cone; and it is a very fine mountain, though less stately and symmetrical than Cotopaxi. It has large snow-beds on the upper part of the peak, which die out before its apex is reached. That is black, and is probably formed of slopes of fine volcanic ash. But little smoke was seen to issue from the cone, but at intervals of from twenty to thirty minutes were observed outrushes of steam, which shot up jet-like with immense rapidity to a height of 4,000 or 5,000 feet above the edge of the crater, and then spread out into a mushroom-like head, which was gradually wafted away by the wind. The eruptions of Cotopaxi were not ordinarily as violent as those of Sangai; but Mr. Whymper witnessed at one time "at a distance of sixty-five miles an eruption of ash which was projected 20,000 feet into the air, and poured out in such volume that at the distance of sixty-five miles it produced the effect of twilight soon after midday. Some of the eruptions of this volcano are attended by great floods, which Mr. Whymper believes are the result of the cone becoming unusually hot and liquefying the glaciers which repose upon it." While it is said in the "Encyclopædia Britannica" that the crater of Altar is the bed of the only real glacier known to exist in the Ecuadorian Andes, Mr. Whymper has found, on Altar, larger glaciers outside of the crater than that which lies inside it, and other large glaciers upon Carihuairazo, Illiniza, Cotocachi, Sincholagua, Ruilindaña, Cotopaxi, Cayambe, Sara-urcu, Antisana, and Chimborazo. The largest were on the four mountains last named. Although the glacier-covered area on several of these mountains is comparable to the amount on Mont Blanc, the Ecuadorian glaciers never descend to so low an elevation as one might expect from glaciers flowing out of such extensive reservoirs. None of them are known to descend so low as 12,000 feet, and they generally terminate at between 14,000 and 15,000 feet. Moraines are scarce upon them, and *roches moutonnées* are rare. The crevasses in the lower parts of the glaciers of the Ecuadorian Andes are smaller and less numerous than in corresponding situations in the Alps; but in the higher regions they are frequently of enormous size. The force of the winds on the mountains was not remarkable, but Mr. Whymper says, "It is almost impossible to speak in too extravagant terms of the highly electrical condition of the Ecuadorian Andes." Mr. Whymper gives the following table of temperatures and heights of mountain-summits in Ecuador, as determined by himself and by Reiss and Stübel:

ASCENT.	Name of mountain.	Temperature on summit.	Height in feet.	
			Whymper.	Reiss and Stübel.
1880:		Deg. Fahr.		
Jan. 4....	Chimborazo......	21	20,517	20,703
Feb. 2....	Corazon..........	37–43	15,871	15,801
Feb. 18...	Cotopaxi..........	13–21	19,550	19,498
Feb. 23...	Sincholagua.....	....	.....	16,365
March 10..	Antisana..........	44–60	19,260	18,885
March 23..	Pichincha..........	46	15,918	15,706
April 4...	Cayambe..........	32–41	19,200	19,161
April 17..	Sara-urcu..........	43–55	15,500	.....
April 24..	Cotocachi..........	36	16,289	16,293
June 29...	Carihuairazo......	33–42	16,480	16,752
July 3....	Chimborazo.......	15–20	.....	.....

The two estimates of the height of Chimborazo differ by 186 feet. Villavicencio, twenty years earlier than Reiss and Stübel, stated the height at 21,067 feet; Humboldt, forty years earlier still, at 21,424 feet; and the Spaniards associated with the French Academicians in 1748, at 21,611 feet. These would seem to indicate that the mountain is sinking, but the French Academicians who were associated with the Spaniards made the height 20,581 feet, or 64 feet less than Mr. Whymper's measurement.

Dr. Güssfeldt in the Chilian-Argentine Andes.—Dr. Paul Güssfeldt explored from November, 1882, to March, 1883, the Chilian-Argentine mountain-region containing Aconcagua, the most elevated known point of the American Continent. This region lies between the 32d and 35th degrees of south latitude, and is bounded on the east by the Pampas and on the west by the Pacific Ocean. The central Chilian-Argentine Andes are sketched by Dr. Güssfeldt as two parallel chains, having on the Pacific an outlying coast-range. The western chain is the true water-shed of the Atlantic and the Pacific; while the eastern chain is in many places broken through by the waters rising in the great trough between the two chains, which have no well-defined valley formation. This trough, or basin, 185 miles in length, is very difficult of exploration, while only three months in the year are available for the purpose. Dr. Güssfeldt crossed the divide at four points, and obtained the following altitudes: Atravieso de la Leña, 13,474 feet; Paso del Maipo, 11,394 feet; Cumbre Iglesia, 12,303 feet; and Boquete del Valle Hermoso, 11,690 feet. The crest-line between these elevations was estimated to reach over 19,600 feet. The passes of the second chain reach similar heights, viz., 13,779 feet, 12,270 feet, and 9,494 feet, respectively. The mountain-land forming the left northern side of Valle Hermoso comprises the Ramada range, with peaks 19,685 feet high, the highest being 21,040 feet. Lastly, the great volcano Aconcagua reaches 22,867 feet, near the beginning of Valle Hermoso. Dr. Güssfeldt in his paper discusses the question of the effect of rarefied air at great elevations upon the human frame. He says that he and his assistant attained 21,030 feet on Aconcagua, and were able to work their scientific instruments at that height, although, from anxiety and want of sleep, they were not in good condition. Their lungs were physically exhausted by the effort of speaking, but there was no flow of blood from nose or ears. He believes

SANGAI, AS SEEN FROM CHIMBORAZO.

that the so-called "puna" can be resisted by mental effort and confidence, the only effects upon a properly trained person being those of increased lung-action. The glacial covering of the central Chilian-Argentine Andes is, as a whole, widely different from the Alpine type. The structure of the highest points is unfavorable for the collection of large glacier-forming masses of snow. The wind also probably plays an important part in carrying off the fallen snow. At all events, the northwest side of Aconcagua is entirely free for a belt between 19,685 and 21,653 feet, although it is there of a trough-like construction, affording a good hold. Elsewhere, the conditions of position and incline favorable for the retention of extensive ice are wanting. Dr. Güssfeldt discovered, however, one ice-stream, in the head of a side-valley of the Cachapual, called the Cajon de los Cipresses, which is filled with a magnificent glacier, named the Ada glacier, nearly twelve miles in length. The highest peaks but rarely show a continuous snow-cap, as the common formation of abrupt crags leaves the naked rock almost everywhere exposed. Crevassed snow-fields and broken glaciers are common phenomena. Peculiar formations of the upper snow, locally called "penitentes" or pilgrims—curious ice-figures modeled by exposure to the sun—are noticed as occurring at the bottoms of high snow-valleys, in a zone of from 11,483 to 13,779 feet, and on the unfurrowed snow-slopes. As regards the snow-line, its mean altitude is estimated at 13,779 feet, between 32° and 33° south latitude; 11,483 feet in 34°; and 13,123 feet 10′ farther south.

Altitudes in the Himalayas.—Hermann von Schlagintweit Sakünlinski, in the last volume of his journeys in India and high Asia, gives a table of altitudes, including statements of the heights of the most elevated mountains. The elevations are not extraordinary south of the Himalayas, the most marked ones being four mountains from 11,000 to 15,300 feet high in Assam, and the Sufed Koh peak in the Punjaub, 19,839 feet high. The eastern Himalayan district, embracing Bhotan, Sikkim, and Nepaul, contains what, till Mr. Graham discovered two higher peaks, was the highest known mountain on the earth, Gaurisankar or Mount Everest, which is 29,002 feet high; the third highest, Kichinjunga, 28,156 feet high; and has, besides, thirty-two mountains more than 20,000 feet high, and thirty-two of more than 10,000 feet high. The western Himalaya region, extending from Kumaon to Hamazara, presents the Nanda Devi in Kumaon, 25,749 feet high, as its highest peak, and has, besides, twenty-nine mountains of more than 20,000 feet and one hundred and eight of more than 10,000 feet high. In eastern Thibet are ten Alpine stations between Lassa and Guari Khorsum, more than 10,000 feet high, two of them reaching to 15,500 and 16,700 feet; and Lassa, the capital, is 11,700 feet high. Western Thibet, from Guari Khorsum to Balti, ranks next after the eastern Himalayan regions, having within its boundaries the next highest mountain after Gaurisaukar, the Dapsang, 28,278 feet high, with twelve mountains more than 20,000 feet and seventeen of more than 10,000 feet in height. The highest point in eastern Turkistan is the summit of the Kwen-lun, 20,000 feet high. The great passes of the world are in this territory. They include the Kizil Korum pass in Yarkand, at an elevation of 17,762 feet, the Kilian pass in Khotan, 17,200 feet, and the Elchi Davan pass in the Kwen-lun Mountains. The snow-line appears at a height of 15,100 feet on the north side of the Kwen-lun, of 15,800 feet on the south side, of 18,665 feet on the western slopes of the Guari Khorsum, and of 18,010 feet on the northern side; and phanerogamous plants reach up to 19,287 feet on the western side. The highest places inhabited by man are in Thibet at a height of between 14,800 and 15,000 feet, but higher than these are the Hanli Cloister, 15,117 feet, and the Thok Jalang gold-field, 16,330 feet. In all, these mountain-regions contain seventy-three peaks more than 20,000 feet high, of which seventeen rise above 25,000 feet. Dhawalagiri, in Nepaul, 26,680 feet high, which was formerly considered the highest mountain on the earth, is remanded to the fifth place, being exceeded, besides the three mountains already named of superior height, by the Sisbut peak, in Nepaul, 27,799 feet high.

Mr. Graham's Himalayan Explorations.—Mr. W. W. Graham gave an account before the Royal Geographical Society, June 9, 1884, of his explorations in the Himalaya mountains, in the course of which he had achieved the distinction of having, with Emil Boss and Ulrich Kauffmann, his companions, reached a higher point above the level of the sea, in mountain-climbing, than any other living man; his extreme elevation having exceeded by 1,700 feet the highest that had previously been accomplished. After making one attempt, too early in the spring, in which he reached the height of 20,000 feet, Mr. Graham started on the 24th of June from Nynee Tal with the Swiss guides Emil Boss and Ulrich Kauffmann for Rini, whence he intended to attempt the Nanda Devi. On parts of the road along the Alknanda to Rini the track was found to consist of "a plank or two resting on pegs driven into the rock," beneath which thundered the river. It was found impossible to reach Nanda Devi, on account of a chasm that yawned across the way, 500 feet deep and worn to the most impassable smoothness, along which no point offered where it could be crossed, and which could not be turned. Mr. Graham remarks that the difficulties of this character in the valleys, before the traveler can get near the peaks, are among the most formidable obstacles to Himalayan exploration. The party then attempted Dunagiri, 23,186 feet high, to which they proceeded by the valley of the Dunagiri glacier. At the head of the glacier, 18,400 feet, where they encamped, Mr. Graham remarked on the character of the scenery around them, that all the peaks were set with rocky *aiguilles*, "all equally black and equally impossible," many of them showing 5,000 or 6,000 feet of sheer descent. On the next day they reached the final slope of the peak, looking down upon a mountain of 22,516 feet and over its very summit upon another of 21,001 feet, and found their elevation to be 22,700 feet, with the summit of the mountain, 500 feet higher, in plain sight. They were not, however, able to reach the summit. At these unusual heights, "neither in this nor in any other ascent," says Mr. Graham, "did we feel any inconvenience in breathing other than the ordinary panting inseparable from any great muscular exertion. Headaches, nausea, bleeding at the nose, temporary loss of sight and hearing, were conspicuous only by their absence, and the only organ perceptibly affected was the heart, whose beatings became very perceptible, quite audible, while the pace was decidedly increased." Another attempt having been made to reach Nanda Devi, and defeated, Mr. Graham made a successful ascent to the summit of the mountain A 21, 22,516 feet high, which he had looked down upon from Dunagiri, and which he named Mount Monal, and ascended 20,000 feet of its companion, A 22, 21,001 feet high. Returning to Nynee Tal, he made another journey thence in August and September to Kabru, taking in on the way Juboru, 21,300 or 21,400 feet, the glacier of which was very steep, and gave the party the hardest climbing they encountered in the Himalayas. The glaciers seem to lie at a higher angle and the general slope of the peaks appears to be greater in the Himalayas than in Switzerland. In the ascent of Kabru the party made the most elevated camp in the whole series of their explorations, at the height of 18,500 feet. Their way toward the summit lay through a long *couloir*, like a half funnel crowned with rocks, in which the snow was loose and just ready to slide; along a steep icy slope to a snow incline, and so to the foot of the true peak; then up nearly 1,000 feet of most delightful rock-work, forming a perfect staircase; and a final slope of pure ice coated with frozen snow, the angle of elevation of which was from 45° to nearly 60°. At 12·15, says Mr. Graham, "we reached the lower summit of Kabru, 23,700 feet above the sea. The glories of the view were beyond all compare. Northwest, less than seventy miles, lay Mount Everest, and I pointed it out to Boss, who had never seen it, as the highest mountain in the world. 'That it can not be,' he replied; 'those are higher,' pointing to two peaks which towered far above the second and more distant range, and showed over the slope of Everest, at a rough guess some eighty to one hundred miles farther north. I was astonished, but we were all agreed that, in our judgment, the unknown peaks, one rock and one snow, were loftier. Of course, such an idea rests upon pure eye-sight; but, looking from such a height, objects appear in their true proportions, and we could distinguish perfectly between the peaks of known measurements, however slight the difference. It has been suggested to me since that we mistook Mount Everest; but this is impossible; for just here occurs the remarkable break in the chain, and there is no snow range at all between Kabru and the group of Mount Everest. However, we had no long time for the view, for the actual summit was connected with ours by a short *arête*, and rose about three hundred feet of the steepest ice I have seen; we went at it, and after an hour and a half we reached our goal. The summit was cleft by three gashes, and into one of these we got. The absolute summit was little more than a pillar of ice, and rose at most thirty or forty feet above us still, but, independently of the extreme difficulty and danger of attempting it, we had no time. A bottle was left at our highest point, and we descended. The descent was worse than the ascent, and we had to proceed backward, as the snow might give way at any moment. At last we reached the rocks, and there we fixed a large Bhotan flag on a smooth slab; we then hastened on." The summit of Kabru is given by the G. T. S. at 24,015 feet. Mr. Graham's extreme point must therefore have been within a few feet of 24,000 feet.

Mr. Johnston's Ascent of Mount Kilimandjaro.—M. H. H. Johnston, as the leader of an expedition projected by a joint committee of the British Association and the Royal Society, made a visit to Kilimandjaro, the great mountain of Africa, in 1883, and spent five months on its slopes in the summer and autumn of that year. Beginning the ascent with forty carriers and some guides provided by one of the chiefs of the country, the party crossed the cultivated zone, which ended at the height of 5,000 feet above the sea, and entered a pleasant, healthful, grassy, wooded, well watered country in which animal life was abundant, and which had a very gradual ascent. His encampment, at the height of about 10,000 feet, was agreeably located, convenient to the lower country, and about four miles in a direct line from Kimawenzi, and seven miles from Kibô. His first excursion was to the base of Kimawenzi. The ascent was impracticable on account of the weather, and it seemed doubtful whether the slope afforded sufficient foothold to make it feasible in any weather. The snow varied greatly in quantity, and very rapidly on the mountain-sides, which, when bare, appeared composed of lava-rocks with crevices and *glissades* filled with a reddish sand. Mr. Johnston's chief object was to reach the snows, and, if possible, the summit of Kibô, but he had difficulty in inducing his native companions, on account of their superstitions, to accompany him. Vegetation appeared fairly flourishing up to a height of nearly 13,000 feet, and wasps and bees were still to be seen. A little higher, warm springs were found, the temperature of the trickling mud from which was indicated by the thermometer at 91° Fahr. The last resident bird was observed at 13,700 feet. Proceeding along the central connecting ridge of Kilimandjaro, Mr. Johnston suffered nothing from want of breath or mountain-sickness, although his Zanzibari followers were considerably affected; but at 16,315 feet, the highest point he reached, he was overcome with a feeling of exhaustion and a sense of utter isolation. This was within a little more than 2,000 feet of the summit. On the descent, Mr. Johnston again entered the region of vegetation at 15,000 feet, saw traces of buffaloes at 14,000 feet, and saw three elephants and heard the trumpeting of those animals at night at 13,000 feet. On the 18th of October he left his elevated settlement, somewhat unwillingly, and returned to Taveita, passing on the descent, which was by a new route, through some most delightful country, which impressed him as if made for a European settlement. It was "singularly English in look, with open grassy spaces, which seemed in the distance ruddy corn-fields, and shady woods and copses full of fine timber. Plenty of running streams of clear water intersected this gently sloping, almost level plateau, which, although such a tempting idyllic land, was entirely uninhabited, save by buffaloes and elephants. The average elevation of this country was between 8,000 and 7,000 feet, and the temperature consequently almost cool, ranging from 43° at night to 70° in the midday warmth." Mr. Joseph Thomson, who has also made observations on Kilimandjaro in connection with the Royal Geographical Society, describes the mountain as a mass of which the larger axis is about sixty miles and the shorter one thirty miles in length. The warm springs are an indication of the still persisting volcanic character of the country. Mandara, one of the mountain chiefs, described to him an earthquake which four years previously had shaken the mountain so that one could hardly stand.

Ascent of Mount Cook, New Zealand.—In January, 1884, the Rev. W. S. Green gave an account before the Royal Geographical Society of recent explorations of the mountains of the southern island of New Zealand. Accompanied by the Swiss guides, Emil Boss and Ulrich Kauffmann, who, later in the same year (1883), were with Mr. Graham in the Himalaya mountains, he first made some preliminary explorations in the great Tasman glacier, which, at its terminal end, is 2,300 feet above the level of the sea. Afterward they pitched a camp 8,000 feet below the summit of Mount Cook in the angle formed by the junction with the main stream of a tributary glacier, which was named the Ball glacier. Two or three fruitless attempts were made to ascend the highest peak, and then a successful one. Bivouacking for the night near the top of a ridge named the Haart Grat, at the height of 7,000 feet above the sea, they, on the next morning (March 2d), struck the head of a glacier to the north, named the Freshfield glacier. Passing over the Haart Grat, they found themselves on the upper firn of the Hochstetter glacier, which they crossed with an hour's smart walking. Reaching a glacier descending from between the ribs of Mount Cook, they followed it upward for five hours to its source at the foot of the highest peak. The summit was reached at about a half-hour before sunset, so that, darkness coming on after they had got only a short distance down, they were obliged to rest on a ledge during the night, and descend the next morning, going twenty-two hours without food. Mount Cook, 12,362 feet high, is the loftiest peak of a great range of mountains, which were also partially explored by Dr. Von Lendenfeld and his wife. The southwestern part of the New Zealand Alps, between Milford Sound and Dusky Sound, is regarded as presenting a fine field for exploration. The coastline is broken by numerous fiords, some of them resembling those of Norway, but presenting more picturesque and savage scenery. Prof. Bonney, President of the Alpine Club, supplemented Mr. Green's address with the observation that the ascent of Mount Cook was one of no common danger, and daring risks are run which are not very frequently encountered in the Alps. An additional peril exists in the shape of excessive precipitation. The avalanches are never silent, and the annual rainfall on the west side of the range, and probably high on Mount Cook, amounts to 113 inches.

MUSIC. The Tonic Sol-fa System.—A system that proposes to overturn the established order of things in any department of education, literature, or art, should have an unquestionable *raison d'être.* In the case of the Tonic Sol-fa system, the apology for its existence and the strength of its claim upon public attention lie in the fact that so small a proportion, even of cultivated people, have an intelligent understanding of music, while the masses scarcely have any more knowledge of its laws and principles than a bird that has been taught, by constant repetition, to sing a melody. Advocates of the Tonic Sol-fa system claim that this low state of musical culture is an inevitable result of using the staff as a medium for studying music. They argue that the staff represents the instrumental, which is the scientific, side of music; that each different key or gamut must be represented by artificial signs, corresponding with the mechanical appliances of musical instruments; and that the masses of the people can no more acquire music through the staff than they could gain a knowledge of mathematics through the complicated Roman numerals. They point to history and the present condition of musical development throughout the world as fully confirming their views; inasmuch as, even in the most musical of all countries, Germany, it is not the millions of the people who understand music, but the boasted culture is centered in the comparatively few in each community who are endowed with special musical gifts.

On the other hand, it is claimed that music has its natural side, which is represented by the Tonic Sol-fa system; that when the subject is approached from this natural side its supposed mysteries are no more difficult of understanding than the principles of arithmetic or the construction of a language; that, consequently, it can be learned as easily as other subjects, and should be taught in all schools as one of the regular studies. It is also found (and this fact is of supreme importance) that approaching the subject from its natural side leads, by easy gradations, and in the most logical way, to a knowledge of the deepest scientific principles of the art.

Tonic Sol-fa was a growth. Its germ originated with a philanthropic lady of Norwich, England, Miss Sarah Glover. In her efforts to simplify music for the charity children in whom she was interested, she was led to the device of using, as signs of tones, the initials of the syllables—*do*, *re*, *mi*, etc. Finding the results far beyond her expectations, she devoted considerable time and thought to the subject, and in 1835 published a book entitled "Scheme for rendering Psalmody Congregational." It is not probable that the innovation would have extended beyond her personal influence but for circumstances that followed. In 1840 a conference of Sunday-school teachers met at Hull, England. Among the subjects discussed, the low state of church and Sunday-school music received earnest attention, and a young Congregational clergyman, named John Curwen, was appointed to investigate the matter, and, if possible, to devise some method of teaching music that the common people could understand. This proved to be the initial step of a great educational reform. Many attempts had previously been made to simplify the study of music, but they were chiefly based on theory, and hence have never accomplished the reform at which they aimed. Moreover, they have always been undertaken by persons who were familiar with the existing system, and their plans were apt to be simply modifications of that system. The work could only be accomplished by some one who combined these qualifications: intelligence, teachableness, and such an unfamiliarity with music and musical methods as would lead to his following the subject through the natural channels of his own mind. This combination Mr. Curwen proved to possess. He had an intense love of music and an exalted idea of its power in humanizing and refining the people. Yet his own musical talent was very small, and his ear singularly defective. It is related that, while he was at college, two of the students laid a wager as to whether he could be taught to sing the scale correctly in a given number of weeks. He entered into the affair with spirit, went patiently through a course of daily training, and just succeeded in accomplishing the task, but with nothing to spare. In an address made in his later years, Mr. Curwen thus describes his experience:

> For myself, all this while, I could neither pitch a well-known tune properly, nor by any means "make out" from the notes the plainest psalm-tune which I had not heard before. To obtain that moderate ability was the height of my musical ambition. I therefore sought a private teacher, who, with the help of a piano, drummed much practice into me, but no independent power. I could run in the "go-cart," but could not take a step alone. I remember being often told that I did not mark correctly the semitones (between the third and fourth, and seventh and eighth of the scale), and I thought if those same semitones were but marked plainly on the music before me, how gladly and earnestly I would strive to mark them with my voice; but as it was, I was continually afraid of these semitones. I knew they were on the staff before me somewhere, but I could not see them. They lay concealed, but dangerous to tread upon, like a snake in the grass. No sooner had I, with great pains, taught my ear an interval, than I found frequently the very next example of what seemed the same to be quite a different thing by half a tone! I longed for some plan by which these puzzling deceivers might be named and detected with equal facility in all their shifting abodes on the staff.

Visiting Miss Glover's schools at Norwich, in 1841, he was delighted with the method she employed, and was at once convinced that it furnished a clew for unraveling the mysteries of music. On returning to his home, he exclaimed, "Now I have found a tool to work with!" In the same address from which the previous quotation was taken, he speaks thus of the old method and the new:

> I soon found that the old methods had deceived me with the shell of knowledge, instead of giving me its kernel. The thing music I perceived to be very different from its names and signs. I found it much more simple and easy in itself, and incomparably more beautiful, than the mere explanation of the signs of the old notation with which elementary books are commonly filled. I had easily mastered them all, and had also studied a "first book" on harmony, but I seemed to have known nothing of music till then. I now saw that Miss Glover's plan was to teach, first, the simple and beautiful thing music, and to delay the introduction to the ordinary antiquated mode of writing it until the pupil has obtained a mastery of the thing itself. Her method was, beyond all controversy, more deeply established on the principles of the science than any other, and by giving it a fair trial on myself, and on a little child who lived in the same house, I became convinced that it was also the simplest of all, the easiest to teach, and the easiest to learn.

From this time Mr. Curwen devoted himself to the work of adapting music to the wants of the people. A partial failure of health compelled him to give up preaching, and his whole time was thus left free to this, which proved to be his life-work. Being convinced that Miss Glover's system embodied a great educational principle, he adopted it, with some necessary modifications. From this time the process of growth continued for years, till the system was complete. Many teachers became interested in the new method, and the experience of all was made use of in perfecting the system. Annual meetings of teachers from various parts of the kingdom were held for conference and discussion. Suggestions that gave promise of improvement were made the subject of experiment, and at the annual meeting notes were compared. If an expedient was found to be an improvement, it was adopted. Thus the system grew out of work and experience, not of one teacher, but of many.

In 1851 the first number of the "Tonic Sol-fa Reporter" appeared. It was at first only printed at irregular intervals, but in 1853 it began its existence as a monthly journal, and it has since been the organ of the movement in Great Britain and her dependencies. In 1853 the "Tonic Sol-fa Association of London" was formed, with Mr. Curwen as president. At the close of 1856 the number of pupils of the system was estimated at twenty thousand. On June 24, 1857, the London Association held a juvenile choral meeting at Exeter Hall, and the interest excited by this meeting suggested the idea of a juvenile concert on a large scale at the Crystal Palace at Sydenham. This plan was realized on the 2d of September following, when three thousand children sang to an audience of thirty thousand people. Of this event one of the London papers said, "It was left for an almost unknown institution to draw a larger concourse of persons than has ever been attracted in this country to a musical performance." This extraordinary success lifted the movement at once into national importance. A classical concert, given in Exeter Hall in 1858, still further confirmed this favorable impression by showing that the value of the system was not confined to children or to elementary music. Musicians and teachers of the highest order became interested.

A most important feature of the movement is the series of certificates, by which the standing of every teacher and pupil of the system is determined—elementary, intermediate, matriculation, and advanced certificates, and also what are called "Theory Honors," showing the degree of proficiency in the theory of music. Every effort was made by Mr. Curwen to induce teachers to require their pupils to take these certificates in their order, and his signal success is the cause of the remarkable coherency observed in the Tonic Sol-fa movement.

In 1865 Mr. Curwen established the Tonic Sol-fa press at Plaistow, near London. The sale of books had by this time become large, but he refused to enrich himself with the proceeds of the increasing business. The profits were chiefly employed in the publication of standard works in the Tonic Sol-fa notation. All the vocal works of the great masters are stereotyped and printed in this notation, besides thousands of English and German glees, sacred music, etc. The catalogue is immense. Instruction-books and music for instruments and bands are also published in this system.

In 1867 a musical competition was held in connection with the Paris International Exhibition, at which any nation was allowed to compete. A prize of £200 and a gold wreath were to be given to the best choir. A chorus of about seventy voices was sent by the Tonic Sol-fa Association, with Mr. J. Proudman as conductor. The singing of this choir excited the utmost enthusiasm, and the new system again received a mighty impetus. Owing to a simple technicality (the prize could only be given to a choir of men's voices, and the English chorus was "mixed"), the highest honor could not be given them. But a special laurel wreath was given by the Emperor, with a gold medal, a diploma, and the badge of the Orpheonists of France.

A most important element of success in the Tonic Sol-fa movement was the foothold it gained in the board (public) schools. This was accomplished in the face of the most determined opposition, her Majesty's Inspector of Music being a sworn enemy of the method. But all the power of governmental influence availed nothing against the popularity of a system that made the reading of music as easy as the reading of the English language, and the movement swept on with an increasing tide of success. The latest improvements of the method were the following: In 1867, adopting a system of time-names from the French (with slight modifications); in 1870, making use of a series of hand-postures (manual signs) to indicate the seven tones of the scale as a means of training classes. In 1875 the "Tonic Sol-fa College of London" was incorporated, and it is now the great center of authority and influence. A building for the college has been erected at Forest Gale, in the eastern suburbs of London.

Thus the greatest musical reform of the century grew in a single generation from the humble efforts of an unknown and unmusical clergyman. The aims of Mr. Curwen and his associates were, from the beginning, rather philanthropic than professional or artistic. The new power of music was constantly used for the benefit of the ragged school, the Band of Hope, and other efforts in behalf of the lower classes. Missionaries also introduced the system in all parts of the world, and usually found that the natives could learn to read the language of music by this method much sooner than their own tongue. The system has been thus introduced into Madagascar, Cape Colony, Hong-Kong, Beyrout, Mount Lebanon, Fiji, South Africa, Bombay, Calcutta, Barbadoes, St. Helena, Spain, Burmah, Chili, and the Sandwich Islands.

In a recent issue of the London "Times," Mr. J. S. Curwen gives the following statistics:

> There are now, in the elementary schools of the United Kingdom, about 1,000,000 children learning to sing at sight upon our system. The Tonic Sol-fa College has twenty-eight different kinds and grades of musical examinations, and these were passed last year by 18,716 persons. Every examination includes individual tests in singing at sight. We have between 4,000 and 5,000 teachers at work, and at the present time they have under instruction some 200,000 adults, in addition to the children already mentioned.

As the efforts of the leaders of the movement were mainly toward the popular side of the art, it is all the more remarkable that the influence of the system has been equally great on the side of higher musical education. The educational principle that simplifies the first steps for the beginner, applies, with equal force, to each subsequent stage. Teachers who use the system are, on the average, far more intelligent than those who follow the old method. Mr. Curwen's later works on "Harmony," "Musical Theory," "Statics," etc., are, beyond all comparison, more profound, comprehensive, and clear than any other treatises that have ever been written on the subject of music. Mr. Curwen died on the 26th of May, 1880.

Introduction into American Schools.—The Tonic Sol-fa movement grew to completeness as a system, took possession of nearly all the channels of popular education in Great Britain, raised up an army of five thousand teachers, established an immense literature in its own peculiar notation, and, during the thirty years in which this process was going on, not only was not adopted by any American teachers, but scarcely attracted the slightest attention among them. This singular phenomenon can be accounted for. So many efforts had been previously made in this country to simplify music, so many supposed improvements had been brought to the attention of the public, that the subject was regarded as exhausted. If the subject was not, the people were, and they became confirmed in the belief that the idea was wholly chimerical. Moreover, America had been peculiarly favored in the possession of a truly great musical teacher, Dr. Lowell Mason, who had adapted the Pestalozzian method to the study of elementary music. Thirty years ago the condition of popular music in this country was greatly in advance of that in England. A false theory (the fixed *do*) had been introduced there, and popular progress in music had received well-nigh a fatal check. Indeed, it was from the prevalence of this heresy, and the consequent paralysis of musical efforts among the masses, that this great popular movement sprang. Hence it is not strange that America, with an excellent system in general use, and with a wide diffusion of musical intelligence, should think slightingly of any scheme or system that arose in that country. It took many years to reveal the truth that the new English system was based upon a far deeper and broader educational principle than the American, and was therefore capable of producing vastly greater results. That this is true, is shown by the fact that the condition of popular music in the two countries is now completely reversed. While England was growing year by year in musical intelligence, America was losing ground. The nature of the musical staff is such that the Pestalozzian principle can not be fully applied to the study of music when the staff is used as a medium, or teaching instrument. It is essentially complex, while music, as a language, is exceedingly simple—so simple that little children can often sing before they can talk. The staff, as a means of writing or representing the language, is very complicated. It represents the instrumental side of music with the many arbitrary signs that are necessary to indicate the flats, sharps, naturals, signatures, and all else that belongs to a mechanical production of the tone-language. Tonic Sol-fa expresses this language in its adaptation to the human voice, and is a natural and therefore simple expression.

It was this vital distinction between the two principles described that caused the remarkable change in the musical histories of the two countries—one steadily losing ground, the other rapidly advancing, and gaining not only all that the other had lost, but much more; leading the masses of the people to a degree of musical intelligence that is wholly new.

The System in America.—Capable teachers of the system came to America, one by one, and musical writers and critics observed, and occasionally reported, the remarkable results of the Tonic Sol-fa movement in England. The initiation of a distinctive American phase of this educational reform may be regarded as dating from 1881. In that year a combination of teachers and friends of the system was effected, and a permanent organization was formed, with the title of the "American Tonic Sol-fa Association." During the same year a monthly organ of the movement was established, called the "Tonic Sol-fa Advocate," published in New York. Text-books in the Tonic Sol-fa notation are also published.

The question as to whether the Tonic Sol-fa system is as well adapted to the educational needs and conditions of this country as of England has had an authoritative answer. At the annual meeting of the New Jersey State Association of Public School Teachers in 1883, a committee, composed of three school principals, was appointed to investigate the system. The report of this committee was rendered Dec. 30, 1884, at Newark. The committee say they sent a circular of inquiry to all teachers, principals, superintendents, etc., who had either taught the system, or witnessed its results in their schools. Replies were received from five hundred teachers in many different States, from Massachusetts to California; and, of these replies, every one was in favor of Tonic Sol-fa as superior to the staff system. The report concludes as follows:

> Considering carefully all the evidence we have received, your committee can not form any other than the following conclusions relative to the Tonic Sol-fa system:
>
> 1. It is simple and easily understood.
> 2. It has a tendency to encourage pupils to sing.
> 3. It is well adapted to the youngest primary pupils.
> 4. It holds the attention and sustains the interest of pupils better than the staff.
> 5. It secures the greatest educational results to the greatest number.
> 6. It is most likely to be taught successfully by the

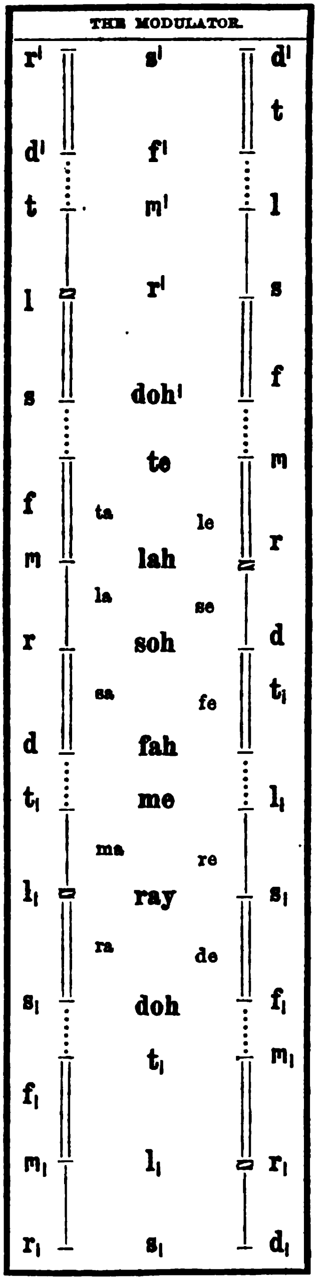
regular teachers who have not had a special musical education.

7. It is the best possible introduction to an intelligent understanding of the staff notation.

The Notation explained.—The basis of the Tonic Sol-fa notation extends nearly as far back in the past as the staff itself. The syllables were invented by Guido Aretina, in the eleventh century. The initials of these syllables are used as signs of the tones. It will be observed that one of the syllables is changed (*si* to *te*). There are several advantages in this change, which musicians will quickly recognize. The sensible plan of giving an English instead of an Italian spelling of the syllables will also universally commend itself. For the tones above the octave the figure 1 is placed at the top of the letter, and the figures 2, 3, etc., for still higher octaves. Octaves below are indicated by figures at the bottom of the letters. Intermediate (chromatic) tones are indicated by using the vowels *e* for sharps, and *a* for flats, as *fe*, *re*, *ta*, *ma*, etc. An examination of the Modulator will make all this clearly understood. Fixed pitches are represented in this system, as with the staff, by the letters C, D, etc. The pitch at which Doh is to be taken is defined as "Key C," "Key E♭," etc.

The central feature of the Tonic Sol-fa system is the Modulator. This is a truthful representation of music to the eye, which the staff is not. The staff represents the intervals between the tones as equal, whereas the whole art of music is based upon the fact that they are not. The Modulator is a chart that represents the scale, showing the correct intervals between the tones by the distances between the syllables. It not only represents the relations of tones in a single key, but with the side-columns it shows the relation of keys to each other. The central column represents the principal key of a piece—the Tonic. The first column on the right represents the First Sharp Key, or key of the Dominant. A second column on the right would represent the Second Sharp Key, or Dominant of the Dominant. The first column on the left represents the First Flat Key, or key of the Sub-Dominant; a second column would represent the Second Flat Key, and so on. Thus the great fact of the key relationship of tones and the relationship of keys is set before the eye as directly, as fully, and as simply as possible. A complete familiarity with the Modulator is necessary to understand the notation fully. The pupils are drilled to sing the tones as the teacher points on the Modulator, and by this practice the Modulator is soon photographed upon the mind, so that it stands behind every note the pupils see in the book. The notes do not appear on a level to the pupil, but seem to move up and down to their places on the Modulator. The Modulator that is herewith given as an illustration, shows only the Tonic column, with its first sharp and first flat keys. In the practical working of the system, an "extended" or "complete" Modulator is used, giving the key of C with all the sharp keys on the right and all the flat keys on the left. This is invaluable in the study of classical music with its endless variety of modulations.

THE MODULATOR.

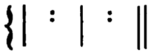


When a transition (change of key, commonly called modulation) occurs during the progress of a piece, it is indicated by a double note, thus: sd, lr, df, etc. (pronounced "s'doh," "l'ray," "d'fah"), the small note on the left giving the name of the tone in the old key, and the large note its name in the new key, and also by the signature of the new key placed directly over the notes. After the change is made, the reading in the new key is as easy and natural as in the original key. When the transition is very brief, less than two measures it is more convenient not to change the names of the tones.

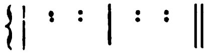
In the Tonic Sol-fa notation, time (duration or length of tones) is not, as in the staff system, represented by arbitrary characters, but by space. A beat (or, as it is called in this system, a pulse) is represented by a certain length of space. A tone two pulses long occupies twice the space. If the pulse is divided, the space is divided, etc. Thus the system is philosophical and consistent in every part.

The notation represents the different degrees of accent as well as time. The strong accent is indicated by a long, heavy bar, the medium accent by a short, thin bar, and the weak accent by a colon (:); that is, a note following a long or short bar or colon is to be sung with a strong, medium, or weak accent. Time (length) is represented by the space between the accent marks. The space from one accent-mark to the next represents the time of a pulse (beat, or part of a measure); and the space between the strong accent-marks (long bars) represents the time of a measure.

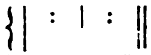
Two-Pulse Measure.



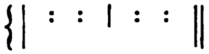
Three-Pulse Measure.



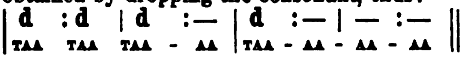
Four-Pulse Measure.



Six-Pulse Measure.



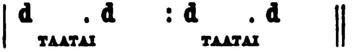
A system of Time-names is used to aid in the study of time. The pulse is the unit of measurement, and a tone one pulse long is named TAA. A dash indicates the continuation of a tone through the next pulse, and the time-name is obtained by dropping the consonant, thus:


d :d | d :— | d :— | — :—
TAA TAA TAA - AA TAA - AA - AA - AA

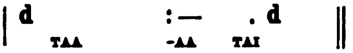
(AA has the sound of *a* in *far*; *ai*, as in *pail*; *e*, short, as in *end*.)

The various subdivisions of the pulse and their time-names are shown in the following table:

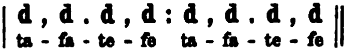
HALF-PULSE TONES.—Indicated by a dot in the middle of the pulse-space:



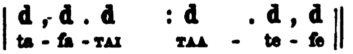
PULSE-AND-HALF TONES:



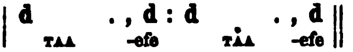
QUARTER-PULSE TONES.—Indicated by a comma in the middle of each half-pulse:


d , d . d , d : d , d . d , d
ta - fa - te - fe ta - fa - te - fe

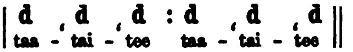
Two QUARTERS AND A HALF, and a half and two quarters:



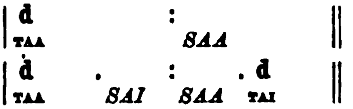
THREE QUARTERS AND A QUARTER:



THIRDS of a pulse (triplets).—Indicated by inverted commas:

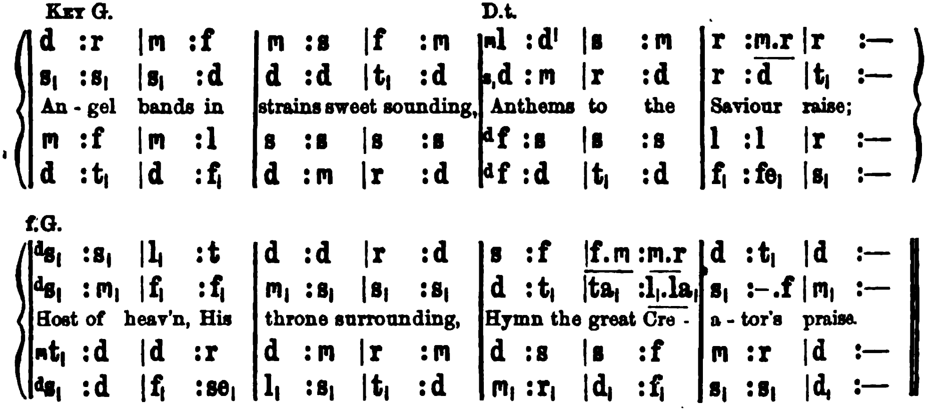


SILENCES (Rests) are indicated by the absence of notes in the pulse-divisions, i. e., vacant space. The letter *S* is used as the initial letter in the time-names for silences instead of *T* or *F*:

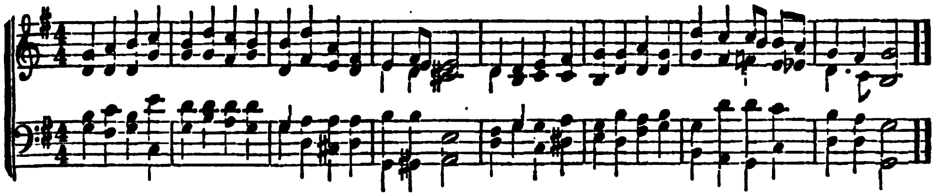


In the Sol-fa notation no distinction is made between $\frac{2}{4}$, $\frac{2}{2}$, $\frac{3}{4}$, $\frac{3}{2}$, etc., there being but one way of writing the different varieties of measure.

The following tune shows the leading characteristics of the notation:


KEY G.
D.t.
An - gel bands in strains sweet sounding, Anthems to the Saviour raise;
f.G.
Host of heav'n, His throne surrounding, Hymn the great Cre - a - tor's praise.

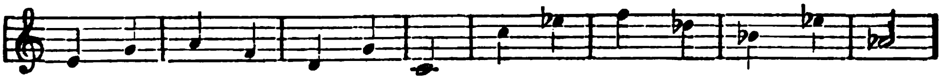
The same tune in staff notation would present the following appearance:



The foregoing tune introduces not only chromatic tones, but also "modulation" or "transition." A brief departure is made to the key of D in the second line, returning to the original key at the beginning of the third line. The change is indicated not only by the "bridge-tones," but also by appropriate letters placed above. The key-letter is given and a small letter to show the characteristic tone of each change, which is *te* in passing from the key of G to the key of D, and *fah* in passing from D back to G. The staff copy gives no indication of the modulation, but compels the reader to consider all accidentals as indicating chromatic tones.

In examining the Sol-fa copy it will be observed that a great incidental advantage of the notation lies in the fact that there is no different way of reading for the male voice, as is required by the bass clef with the staff. The reading of all parts is the same, and there are no confusing leger lines as are seen in the tenor part of the staff copy. But the grand characteristic difference is this: If the tune had happened to be printed in another key, as F or A, every note would occupy a different place on the staff, and its location could only be ascertained by observation and comparison. In other words, the notes do not actually tell the singer anything. They present a series of puzzles, each one of which has to be examined and its meaning studied out. That this is not an exaggerated statement is shown by the fact that no note has a simple meaning, a signification that is apparent on the face of it, but its meaning depends upon some sign, and often several signs, that have preceded it. For instance, when there are no flats or sharps at the beginning of a tune, the first line (with the G clef) stands for the third tone of the scale; when there is one sharp, it stands for the sixth; with two sharps, the second; with one flat, the seventh; and so on through all the keys. In the Tonic Sol-fa notation the reading of all keys is the same to the singer. In other words, there is one way of reading, instead of twelve.

In the singing of classical music this difference becomes vastly more apparent. In all music of the highest order there is a continual series of modulations or changes of key. In the staff-notation these changes are not only not expressed, but they are so buried under misleading technicalities that none but experienced harmonists can unravel the mystery and follow the changes intelligently. In the Tonic Sol-fa notation, these changes are interpreted to the reader and made simple and easily understood. In passages where the staff-reader is groping blindly and losing all conception of the scale-relationships, the Tonic Sol-fa reader is going forward with intelligence and comparative ease. The following illustration of an abrupt modulation will show the characteristics of the two notations:



KEY C. KEY A♭.
| m :s | l :f | r :s | d :— | d'm :s | l :f | r :s | d :— ||

Very few singers could sing this at sight by the staff-notation. Tonic Sol-faists of comparatively little experience would sing it from their notation readily. It is a very simple musical phrase, repeated in two different keys, the key of C, and the key of A♭. The staff makes it look like a passage in which four measures are very simple, and four measures very difficult. Only a musician with a professional degree of experience can see the real state of the case, and even he not without some scrutiny. The Tonic Sol-fa copy shows the whole truth in an instant. Without even glancing over it, the Sol-fa reader could begin singing the exercise. At the fifth measure he would sing the upper *do*, but instantly change it to *mi*, and the last eight measures would be nearly as easy to him as the first. He would know exactly what he did, and why he did it. Thus it is not strange that in England all the classical vocal music has been printed in the Tonic Sol-fa notation, and is sung by innumerable societies.

N

NAPHTHALIN. See DRUGS, NEW.

NEBRASKA. State Government.—The following were the State officers during the year: Governor, James W. Dawes, Republican; Lieutenant-Governor, A. W. Agee; Secretary of State, Edward P. Roggen; Auditor, John Wallichs; Treasurer, Phelps D. Sturdevant; Attorney-General, Isaac Powers, Jr.; Superintendent of Public Instruction, W. W. W. Jones; Commissioner of Public Lands and Buildings, A. G. Kendall. Judiciary, Supreme Court: Chief-Justice, Amasa Cobb; Associate Justices, Samuel Maxwell and M. B. Reese.

Finances.—The condition of the State finances, as shown by the reports of the State Treasurer and the Auditor of Public Accounts, is highly satisfactory:

Balance on hand Nov. 30, 1882	$472,114 50
Amount received	2,707,276 64
Total amount received	$3,179,391 14
Total amount disbursed	2,736,574 15
Balance in treasury Nov. 30, 1884	$442,816 99

The State indebtedness is represented by the following bonds:

State relief bonds, due March 1, 1885	$50,000 00
State funding bonds, due April 1, 1897	449,267 85
Total State debt	$499,267 85

The assessed valuation of the taxable property of the State in 1883 was $110,543,644.58, and in 1884 it was $123,615,886.95, showing an increase of $13,072,242.37. The rate of taxation for State purposes for the year 1883 was $7\frac{4}{10}$ mills, and for the year 1884, 7[illegible] mills on a dollar, and there was collected during that period the sum of $1,307,122.05.

Public Institutions.—The Home for the Friendless, near Lincoln, was opened Jan. 1, 1882, and has received 95 adults and 133 children. Of these, 75 children were surrendered to the home, of whom 57 have been placed in families in the State. The Deaf and Dumb Institute, organized in April, 1869, has received for instruction 211 pupils. During 1883 and 1884 the attendance was 141. The Institute for the Blind was opened in January, 1876, and has had 60 pupils. The building was intended to accommodate 50; the attendance during the last biennial period was 36.

From the report of the superintendent for the biennial term ending Nov. 30, 1884, it appears that at the date of last report, Nov. 30, 1882, there were remaining in the Hospital for the Insane, 273 patients. There were received during the two years 410 patients, making a total number of 683 that were treated during this period. Of the number treated 323 were discharged, 144 of whom were restored to mental health, 69 were much improved, 63 unimproved, harmless, and incurable were returned to their counties, 43 died during the two years, leaving in the hospital Nov. 30, 1884, 360 patients, which exhausts the utmost capacity of the present building. At the rate of increase for the past two years, it is estimated by the superintendent that not fewer than 600 applications for the admission of patients will be made during the coming two years. Additional room must be furnished.

Under the law regulating the management of the State Reform School, boys and girls under sixteen years of age, found guilty of any crime except murder or manslaughter, may be received. This school was established and intended, not for punishment, strictly speaking, but rather for education and reformation. The school has 63 inmates. In August, 1883, the contract was let for an additional building, at a cost of $37,410, which is now ready.

Needed improvements have been made at the State Penitentiary during the past two years, among which are the erection of a fire-proof hospital building, a more perfect water-supply, and a thorough change in the system of sewerage and drainage, greatly improving the sanitary condition of the prison. The medical supervision is excellent, and the state of health among the prisoners is good. Under the contract system, the convicts are furnished steady employment, and their wants are well supplied.

The warden, in his report of Nov. 30, 1882, gave the number of prisoners as 261. Since that time there have been discharged 181, the number received being 178. The total number confined in the penitentiary Nov. 30, 1884, was 259, and of that number 23 were for life.

Education.—The following statistics will be found of interest as showing the development of the common schools: Total number of children of school age, 209,403—boys, 108,998; girls, 100,405. Total enrollment, 137,618—boys, 71,680; girls, 65,938. Total number of teachers employed, 6,055—males, 1,906; females, 4,144. School-houses built in 1884, 309. Total number of school-houses, 3,662. Total value of school property, $2,786,385. The present permanent common-school fund amounts to $3,977,216.81. The temporary common-school fund showed a balance, in December, 1884, of $164,804.85.

The attendance at the State Normal School during the past two years has been 470. Number graduated, 89; the greater number of whom are now engaged in teaching in the schools of the State. This school is constantly growing in public favor, the attendance for the past two years being twenty per cent. greater than for any like period in its history. The attendance in all departments of the State University during the last term was 282. In the College of Medicine the attendance was 54.

Railroads.—The following statement shows the number of miles, the assessed valuation per mile, and the total assessed valuations of railroads in the State of Nebraska, as determined by the State Board of Equalization, for the years 1883 and 1884:

NAME OF RAILROAD.	Number of miles.	Assessed valuation, 1883.		Number of miles.	Assessed valuation, 1884.	
		Per mile.	Total.		Per mile.	Total.
Union Pacific	455·7	$11,438 00	$5,212,296 60	455·7	$11,438 00	$5,212,296 60
Omaha and Republican Valley	184·5	3,750 00	691,875 00	224·75	4,100 00	921,475 00
Omaha, Niobrara, and Black Hills	84·10	4,051 00	340,689 10	97·90	4,400 00	430,760 00
St. Joseph and Western	113·2	3,630 00	410,916 00	113·3	4,500 00	509,850 00
Burlington and Missouri River	192·08	10,690 00	2,053,335 20	191·86	12,500 00	2,398,250 00
Omaha and Southwestern	46·63	10,690 00	498,474 70	47·13	12,500 00	589,125 00
Nebraska	135·68	5,133 00	696,445 44	135·68	5,300 00	719,104 00
Nebraska and Colorado	......	....	....	73·86	4,000 00	295,440 00
Republican Valley	455·43	5,840 00	2,659,711 20	505·98	5,300 00	2,681,694 00
Atchison and Nebraska	105·38	4,980 00	524,792 40	105·38	4,980 00	524,792 40
Lincoln and Northwestern	73·05	4,980 00	363,789 00	73·05	4,980 00	363,789 00
Sioux City and Pacific	26·95	4,287 00	115,534 65	26·95	4,600 00	123,970 00
Fremont, Elkhorn, and Missouri Valley	311·11	4,287 00	1,333,728 57	311·12	4,600 00	1,431,152 00
Chicago, St. Paul, Minnesota, and Omaha	189·36	4,317 00	817,467 12	221·58	4,320 00	957,225 60
Missouri Pacific	101·47	5,735 00	581,930 45	101·47	6,100 00	618,967 00
Total	2,474·64	....	$16,300,985 43	2,685·71	....	$17,777,890 60
Average assessed valuation, per mile	....	$6,587 21	....	....	$6,619 43	

The railroads constructed in the State, during the years 1883 and 1884, were:

	Number of miles.
Fremont, Elkhorn, and Missouri Valley	165·06
Omaha and Republican Valley	67·55
Omaha, Niobrara, and Black Hills	16·55
Nebraska and Colorado	73·86
Republican Valley	238·99
Chicago, St. Paul, Minnesota, and Omaha	79·29
Total	641·30

Land Department.—The number of acres of land leased by the State during 1883 and 1884 was 687,472; sold, 267,173; reverting to the State, 48,126; deeded by the State, 25,164; deeded and confirmed to the State, 45,585.

The number of acres of all lands owned by the State, Dec. 1, 1884, was:

Common school	2,746,582·92
Agricultural College	89,080·07
University	44,906·08
Normal School	12,562·39
Saline lands	13,368·87
Penitentiary	676·71
Total	2,907,177·04

The number of acres of indemnity school lands received by the State is 71,629·83 acres.

The following statement will show the revenue of the temporary school fund from educational lands: Dec. 1, 1884, there were under lease 953,638·19 acres of educational lands, appraised at $2,375,744.29, and bearing an annual rental of $160,919.52, at an average valuation of $2.49 an acre. There were under sale 461,408·14 acres of educational lands, the unpaid principal of which is bearing 6 per cent. on $3,112,542.56, amounting to $186,752.55. There were $1,160,267.35 of the permanent funds invested in securities, the annual interest on which is $84,585.38, making in all a temporary fund from land receipts alone of $432,257.45 per annum. There are still vacant and unappraised 1,478,086·13 acres of common-school lands, about half the original grant.

Capitol Building.—The contract for the erection and completion of the main building of the Capitol was awarded, on July 9, 1883, for the sum of $439,187.25, the building under the terms of the contract to be completed by Dec. 1, 1889. The work was entered upon under the plan and specifications adopted by the board, and furnished by the architect of the plans for the east and west wings now completed.

New Counties.—During 1883 and 1884 steps were taken to organize the counties of Loup, Cherry, Brown, Dundy, Sioux, and Hayes. Garfield county has been formed from a portion of Wheeler county, and Keya Paha county from a part of Brown.

Political.—The Republican State Convention to nominate State officers and presidential electors assembled at Omaha, on the 27th of August, and promptly accomplished its purpose. It adopted a platform pledging the hearty support of the party to Blaine and Logan, deprecating a reduction of the duty on wool, recognizing the necessity of a statute regulating railroads, commending the taxation of railroad land grants, asking for a revision of school-land laws, declaring that the public domain should be reserved for actual settlers, favoring honest reform in the civil service, and asking for a free ballot and fair count in the South.

A Republican State Convention, convened at Lincoln, on the 1st of May, chose delegates to the National Convention, and put forth a declaration of the views of the Republican party of Nebraska; closing with a resolution:

> That this convention requests the coming Republican National Convention to provide that in all future national conventions representation shall be proportionate to the Republican votes cast for President in the last preceding presidential election.

The Democrats, Anti-Monopolists, and Greenbackers agreed upon a fusion ticket for electors and State officers.

At the election, November 4, the Republican State ticket was successful. This ticket was constituted as follows: Governor, James W. Dawes; Lieutenant-Governor, H. H. Shedd;

Secretary of State, E. P. Roggen; Auditor of Public Accounts, H. A. Babcock; Treasurer, Charles H. Willard; Attorney-General, William Leese; Commissioner of Public Lands and Buildings, Joseph Scott; Superintendent of Public Instruction, W. W. W. Jones. The Democratic nominees for the respective offices were J. Sterling Morton, L. O. Pace, H. E. Bonesteel, Gustave Benecke, D. W. Clancy, C. S. Montgomery, Nels O. Albert, and A. M. Dean. The vote for Governor was as follows: Republican, 72,835; Democratic, 57,534; Prohibition, 3,075. For the other State officers the Republican vote was about 2,000 larger.

Three Republican Congressmen were elected. For the amendment to the legislative article of the Constitution, 51,959 votes were cast, and 17,766 against it. For the amendment to the executive article, only 22,297 votes were cast, while 44,488 were cast against it. The following was the vote for Presidential Electors: Republican, 76,912; Democratic, 54,391; Prohibition, 2,899; scattering, 47. Leavitt Burnham, Republican, was chosen Regent of the State University, over D. T. Scoville, Democrat. The Legislature of 1885 has 25 Republicans and 8 Democrats in the Senate, 78 Republicans and 18 Democrats in the House.

NERVOUS DISEASES. Miryachit.—This is the Russian name for a peculiar nervous disease, hitherto undescribed, which has been recently brought to the notice of the medical profession. The unfortunate subject is obliged to imitate any sudden sound, or movement, that may be made by a second person. However ridiculous the action may be, the patient feels irresistibly impelled to repeat it as nearly as possible. The disorder is said to be common in Siberia, where it was observed by Lieut. Buckingham, of the United States Navy, who describes it thus:

> While we were walking on the bank here, we observed our messmate, the captain of the general staff [of the Russian army], approach the steward of the boat suddenly, and, without any apparent reason or remark, clap his hands before his face; instantly the steward clapped *his* hands in the same manner, put on an angry look, and passed on. The incident was somewhat curious, as it involved a degree of familiarity with the steward hardly to have been expected. After this we observed a number of queer performances of the steward, and finally comprehended the situation. It seemed that he was afflicted with a peculiar mental or nervous disease, which forced him to imitate everything suddenly presented to his senses. Thus, when the captain slapped the paddle-box suddenly in the presence of the steward, the latter instantly gave it a similar thump; or if any noise were made suddenly, he seemed compelled against his will to imitate it instantly, and with remarkable accuracy. To annoy him, some of the passengers imitated pigs grunting, or called out absurd names; others clapped their hands and shouted, jumped, or threw their hats on the deck suddenly, and the poor steward, suddenly startled, would echo them all precisely, and sometimes several consecutively. Frequently he would expostulate, begging people not to startle him, and again would grow furiously angry, but even in the midst of his passion he would helplessly imitate some ridiculous shout or motion directed at him by his pitiless tormentors. Frequently he shut himself up in his pantry, which was without windows, and locked the door, but even there he could be heard answering the grunts, shouts, or pounds on the bulkhead outside. He was a man of middle age, fair physique, rather intelligent in facial expression, and without the slightest indication in appearance of his disability. As we descended the bank to go on board the steamer, some one gave a loud shout and threw his cap on the ground; looking about for the steward, for the shout was evidently made for his benefit, we saw him violently throw his cap, with a shout, into a chicken-coop, into which he was about to put the result of his foraging expedition, among the houses of the *stanitza*. We afterward witnessed an incident that illustrated the extent of his disability. The captain of the steamer, running up to him, suddenly clapping his hands at the same time, accidentally slipped and fell hard on the deck; without having been touched by the captain, the steward instantly clapped his hands and shouted, and then, in powerless imitation, he too fell as hard and almost precisely in the same manner and position as the captain. In speaking of the steward's disorder, the captain of the general staff said it was not uncommon in Siberia; that he had seen a number of cases of it, and that it was commonest about Yakutsk, where the winter cold is extreme. Both sexes were subject to it, but men much less than women. It was known to Russians by the name of "miryachit."

The late Dr. George M. Beard described similar phenomena witnessed by himself among the "Jumpers" or "Jumping Frenchmen" of Maine and northern New Hampshire. He ascertained that whatever order was given them was at once obeyed. Thus, one of the jumpers who was sitting in a chair with a knife in his hand was told to throw it, and he threw it quickly, so that it stuck in a beam opposite; at the same time he repeated the order to throw it, with a cry of alarm like that of hysteria or epilepsy. He also threw away his pipe, which he was filling with tobacco, when he was slapped upon the shoulder. Two jumpers standing near each other were told to strike, and they struck each other very forcibly. One jumper, when standing by a window, was suddenly commanded by a person on the other side of the window to jump, and he jumped up half a foot from the floor, repeating the order. When the commands are uttered in a quick, loud voice, the jumper repeats the order. When told to strike he strikes, when told to throw he throws whatever he may happen to have in his hand. Dr. Beard tried this power of repetition with the first part of the first line of Virgil's "Æneid" and the first part of the first line of Homer's "Iliad," and out-of-the-way words of the English language with which the jumper could not be familiar, and he repeated or echoed the sound of the word as it came to him in a quick, sharp voice; at the same time he jumped, or struck, or threw, or raised his shoulders, or made some other violent muscular motion.

Dr. William A. Hammond, commenting on these cases, says:

> There is another analogous condition known by the Germans as *Schlaftrunkenheit*, and to English and American neurologists as somnolentia, or sleep-drunkenness. In this state an individual, on being suddenly awakened, commits some incongruous act of violence, ofttimes a murder. Sometimes this appears to be excited by a dream, but in others no such cause could be discovered. Thus, a sentry fell asleep during his

watch, and, being suddenly aroused by the officer in command, attacked the latter with his sword, and would have killed him but for the interposition of the by-standers. The result of the medical examination was that the act was involuntary, being the result of a violent confusion of mind consequent upon the sudden awaking from a profound sleep. Other cases are cited by Wharton and Stillé in their work on medical jurisprudence, by Hoffbauer, and by myself in "Sleep and its Derangements."

The following cases among others have occurred in my own experience: A gentleman was roused one night by his wife, who heard the street-door bell ring. He got up, and, without paying attention to what she said, dragged the sheets off of the bed, tore them hurriedly into strips, and proceeded to tie the pieces together. She finally succeeded in bringing him to himself, when he said he had thought the house was on fire, and he was providing means for their escape. He did not recollect having had any dream of the kind, but was under the impression that the idea had occurred to him at the instant of awaking. A few years ago I had a gentleman under my charge who would attempt to execute any order given him while he was asleep by a person whispering into his ear. Thus, if told in this way to shout, he shouted as loud as he could; if ordered to get up, he at once jumped from the bed; if directed to repeat certain words, he said them, and so on. I am not able to give any certain explanation of the phenomena of "miryachit" or of the "jumpers," or of certain of those cases of sleep-drunkenness which seem to be of like character. But they all appear to be due to the fact that a motor impulse is excited by perceptions without the necessary concurrence of the volition of the individual to cause the discharge. They are, therefore, analogous to reflex actions, and especially to certain epileptic paroxysms due to reflex irritations. It would seem as though the nerve-cells were very much in the condition of a package of dynamite or nitroglycerin, in which a very slight impression is sufficient to effect a discharge of nerve-force.

NETHERLANDS, THE, a constitutional monarchy in western Europe. The Constitution, proclaimed Nov. 3, 1848, vests the legislative authority in the States-General, composed of two chambers. The upper consists of 39 members, chosen by the provincial councils from among the highest class of tax-payers; the lower, consisting of 86 members, is elected by citizens paying from twenty to sixty guilders of direct taxes.

The Government.—The reigning King is William III, born Feb. 19, 1817, who succeeded his father, William II, March 17, 1849. The ministry is composed of the following members: Minister of Foreign Affairs, Dr. P. J. A. M. van der Does de Willebois; Minister of the Interior, Dr. J. Heemskerk Az; Minister of Justice, Dr. Baron M. W. du Tour van Bellinchave; Minister of Finance, W. J. L. Grobbee; Minister of the Colonies, J. P. Sprenger van Eick; Ministor of the Waterstaat, Commerce, and Industry, J. G. van den Bergh; Minister of War, Major-General A. W. P. Weitzel; Minister of Marine, W. F. van Erp Taalman Kip.

Area and Population.—The area of the Netherlands is 12,648 square miles, or 32,999 square kilometres. The population in 1883 was 4,225,065, of which number 2,090,850 were males and 2,134,215 females. The number of marriages in 1883 was 29,815, of births 151,779, of deaths 99,333, excess of births 52,446. As returned in the census of 1879, the population was divided into 2,469,814 Protestants, 1,439,137 Catholics, 81,693 Israelites, and 22,049 of other beliefs. The principal cities are Amsterdam, with 361,326 inhabitants; Rotterdam, with 166,002; and the Hague, with 131,417 on the 31st of December, 1883.

Commerce.—The total value of the special imports in 1882 was 937,680,000 guilders, as compared with 865,568,000 guilders in 1880; of the exports, 712,344,000, as compared with 647,975,000 guilders. Including the commerce with the Dutch colonies the imports amounted to 992,108,000, and the exports to 752,061,000 guilders. Of the imports, 290,712,000 guilders came from the German Zollverein, 276,065,000 from Great Britain, 128,682,000 from Belgium, 76,493,000 from Russia, 42,784,000 from the United States, and 53,103,000 from Java. Of the exports, 336,255,000 guilders went to the Zollverein, 155,683,000 to Great Britain, 112,884,000 to Belgium, 38,319,000 to the United States, and 39,457,000 to Java. The imports of articles of consumption in 1879 amounted to 292,900,000 guilders, exports 233,800,000; imports of raw materials 252,100,000, exports 141,600,000 guilders; imports of manufactured products 109,500,000, exports 80,400,000 guilders; imports of miscellaneous articles 161,300,000, exports 122,800,000 guilders; imports of precious metals 30,900,000, exports 3,100,000 guilders.

Navigation.—The total sailing tonnage with cargoes entered in 1883 at Dutch ports was 2,246,927 cubic metres, of which 797,600 were under the Dutch flag; in ballast 35,838 cubic metres, under the Dutch flag 19,202. The steam tonnage entered with cargoes was 8,750,949 cubic metres, of which 2,417,435 carried the Dutch flag; in ballast 153,303, of which 25,622 cubic metres were under the Dutch flag. The merchant navy on the 1st of January, 1883, counted 701 sailing-vessels, weighing 587,473 cubic metres, and 96 steamers, weighing 288,008.

Railroads, Posts, and Telegraphs.—The mileage of railroads open to traffic Jan. 1, 1883, was 2,001 kilometres, of which 1,052 belonged to the state.

The number of private letters forwarded in 1883 was 47,162,360 domestic, 14,232,332 international letters, and 20,235,882 post-cards, total 81,630,574; the total number of journals, 45,773,598. The receipts of the administration in 1883 were 4,924,382 guilders, expenditures 3,572,869 guilders.

The length of the state telegraph lines on Jan. 1, 1884, was 4,255 kilometres, the length of wires 15,714 kilometres; the number of dispatches in 1883 was 2,072,680 for the interior, and 1,274,463 foreign; the receipts 1,065,479 guilders, expenditures 1,546,397 ordinary, and 87,845 extraordinary.

Finance.—The budget for 1884 makes the total expenditures 143,580,725 guilders, of which 32,358,566 are on account of the public debt;

24,771,942 for the department of finance, including the estimated loss of 5,000,000 guilders in the redemption of silver coins called in under the act of April 27, 1884; 20,432,000 for the Ministry of War; 13,932,204 for the Ministry of the Interior; 31,819,023 for the Ministry of Commerce and Canals; and 11,662,915 for the Ministry of Marine. The total receipts are taken as 114,166,025 guilders, of which 39,550,000 proceed from the excise taxes on spirits and other articles; 25,928,125 from the land and personal taxes and patent dues; 24,450,000 from stamps, registration, and succession duties; 4,812,000 from customs and navigation dues; and the remainder from domains, posts, telegraphs, coast pilotage, railroads, etc. If the receipts fall below the expenses, the Government is empowered to issue treasury bills to the amount of 28,300,000 guilders to cover the deficit provisionally.

The total amount of the public debt in 1884 was 1,004,252,250 guilders, including 10,000,000 guilders of paper money; 611,809,200 guilders bear interest at 2½ per cent., 90,312,050 at 3 per cent., 9,684,000 at 3½ per cent., and the rest at 4 per cent.

The Army and Navy.—The standing army in 1883 numbered on the lists 2,825 officers and 62,689 men. The active *schutteryen*, or militia, numbered 37,198 men; the sedentary, 77,103.

The navy in 1884 consisted of 23 ironclads, comprising 6 turret-ships with rams, 2 monitor rams of the first and 5 of the second class, 5 monitors of the second class, and 5 vessels for river-defense; 93 steamers, of which 28 were screw-corvettes, 12 paddle-steamers, 31 gunboats, and 22 torpedo-boats; and 14 school-ships and 10 other vessels. The navy was manned with 6,821 men, not including 2,361 marines and 1,119 sailors in the East Indies.

The Colonies.—The colonial possessions of the Netherlands have an area of 659,126 square miles, and a population of about 29,000,000.

Java and Madura, with an area of 131,733 square kilometres, contained in 1882 20,268,480 inhabitants, of which number 20,232,915 were natives. The native population of Sumatra, Riouw, Banca, Billiton, Borneo, Celebes, the Moluccas, Papua, Timor, Bali, and the other Netherlandish possessions in the South Seas, is estimated at about 8,400,000, their total area at 1,728,000 square kilometres. The number of Europeans in the Dutch East Indies in 1881 was 41,706, of Chinese 345,372, of Arabs 16,775, of Hindoos, etc., 9,514. Batavia, the capital, contained 92,497 inhabitants, Samarang 60,582, Soerabaya 119,592.

The colony of Surinam, or Dutch Guiana, has an extent of 119,321 square kilometres, and contained in 1882 a settled population of 53,858 souls. Curaçao, or the Dutch Antilles, with an area of 1,130 square kilometres, had in the settlements 44,066 inhabitants.

The total receipts of the treasury in the East India colonies are put down in the budget of 1884 as 142,836,197 guilders, the expenses as 146,935,361 guilders, leaving a deficit of 3,899,164 guilders. This is a more favorable showing than has been made for a long time, the cost of the colonies to the mother-country usually amounting to 12,000,000 or 14,000,000 guilders a year. The increase in the income was due to an advance in the price of coffee, due to reports of a deficient crop in Brazil. The proceeds from the sale of coffee are estimated at 42,671,656 guilders, from the opium-tax 21,207,200 guilders, from the land-tax 19,267,000 guilders, from customs 10,243,000 guilders, from railroads 5,816,000 guilders, from sales of tin 4,348,490 guilders, from the salt duty 7,081,000 guilders. The budget for 1885 estimates the expenditure at 143,000,000 guilders, producing a deficit of 1,250,000 guilders, without reckoning the cost of new naval ships. An increase in the tariff and various economies were proposed, also certain taxes to provide 5,750,000 guilders for construction of railways.

The receipts of the colony of Surinam are estimated at 1,226,898 and the expenditures at 1,455,827 guilders. The receipts and disbursements in Curaçao balance at 686,496 guilders.

The imports of merchandise on the account of the state in 1881 were in value 8,261,000 guilders, of specie 250,000, total 8,511,000 guilders; on account of private individuals 139,805,000 guilders of merchandise, and 10,345,000 guilders specie, total 150,150,000 guilders; total imports of merchandise 148,066,000 guilders, of specie 10,595,000. The exports of merchandise on state account were of the value of 32,181,000 guilders; the exports of merchandise on private account 143,606,000 guilders, of specie 1,339,000 guilders, total 144,945,000 guilders; total exports of merchandise 175,787,000 guilders, of specie 1,339,000 guilders. The sales of coffee on Government account in 1881 were 28,247,000 guilders in value, of tin 3,932,000 guilders; the sales of coffee on private account 18,849,000, guilders, of tin 3,969,000 guilders, of sugar 53,345,000 guilders, of indigo 3,415,000 guilders. Other exports were skins of the value of 1,712,000 guilders, cloves and nutmegs 2,562,000 guilders, rice 1,110,000 guilders, tobacco 20,120,000 guilders, tea 1,542,000 guilders, gambier 7,326,721 guilders, gutta-percha 6,101,898 guilders, gums 5,419,423 guilders, pepper 3,925,707 guilders, and ratany 3,762,647 guilders.

The tonnage entered at the East Indian ports in 1881 was 1,950,547, cleared 1,833,153. The total tonnage of the colonial merchant-fleet was 188,266.

The length of railroad lines in operation at the beginning of 1884 was 707 kilometres. The receipts in 1882 of the lines of the East Indian Railroad Company were 3,912,496 guilders, expenses 1,878,291 guilders; the receipts of the state lines 1,878,291 guilders, expenses 1,080,615 guilders. The number of private internal letters carried in the mails in 1882 was 2,902,126, the number of foreign letters 851,499. The length of telegraph lines belonging to the state in 1882 was 5,879 kilometres, the length of wires 7,539 kilometres, the number of paid messages 369,165.

The natives in the coffee districts of Java are obliged to plant a certain number of coffee-plants and to sell the produce to the Government at the price of fourteen guilders per pecul of 133 pounds. The quantity delivered to the Government under this arrangement is from 800,000 to 1,000,000 peculs a year. Sumatra produces from 100,000, to 150,000 peculs of coffee, inferior in quality to the Java growths, which finds its principal market in the United States. Macassar exports about 120,000 peculs a year of excellent coffee from the Celebes and the eastern islands of the archipelago. The Government crop from Java is sold at auction in Amsterdam and Rotterdam, except 100,000 peculs which are sold in four lots in Java. The private cultivators sell their crop in Samarang and Soerabaya. The tobacco-culture is carried on chiefly in Java and Sumatra. In 1880 6,895,000 kilogrammes were exported, in 1881 13,538,000, in 1882 16,638,000, and in 1883 over 17,000,000. The Sumatra tobacco, used for cigar-wrappers, brings four times the price of the Java product. Cocoanut-oil has been exported of late in large quantities. The tin on the Island of Banca is shipped on Government account to Holland; that of Billiton is exploited by a mining company and sold at auction in Batavia. The center of the pepper-trade is Padang in Sumatra. The tea-culture is in private hands; notwithstanding the pressure of taxation, Java tea is cheaper than the Chinese product. The cultivation of cinchona-bark has extended since it passed from Government control into the hands of individuals. Several companies have laid out large plantations. Sugar was exported in 1882 to the amount of over 4,000,000 peculs, chiefly to London. The principal imports are cotton cloths, petroleum, beer, wine, liquors, butter, flour, iron in various forms, glass and crockery, paper, etc. The imports of cotton fabrics in 1882 were in value 28,208,000 guilders, coming mainly from Holland and England. Petroleum is brought from the United States in sailing-vessels, which take as return-freight sugar to England through the Suez Canal. The chests in which petroleum is brought are filled with cocoanut-oil for export. The import trade is in the hands of a few large Dutch houses which sell to the numerous Chinese traders on the islands. In consequence of a petition to the Government in 1881 of the merchants of Batavia, who complained of fraudulent bankruptcies, the Chinese dealers have begun to keep their books in the Malayan instead of in the Chinese language.

The army of the Netherlandish East Indies is recruited by voluntary enlistment of Europeans and natives. The effective strength on Jan. 1, 1883, was 1,352 officers and 29,030 soldiers. Of the rank and file 13,578 were Europeans, 111 Africans, and 15,341 natives. The civic guards and other named bodies outside of the regular army counted 3,870 Europeans and 5,431 natives.

The appointment in January, 1884, of Otto Van Rees as Governor-General of the East Indies, signified the adoption by the Heemskerk ministry of the colonial policy advocated by the Liberals. The policy to be followed was defined by the Minister of the Interior in the general discussion of the budget of 1884 as the maintenance of the system of coffee cultivation on Government account, and the accordance to the natives of the option to have their lands now possessed in common converted into individual property or retained under the tribal tenure.

The War in Acheen.—When Gen. Van Swieten captured the seat of the Sultan of Acheen, Jan. 24, 1874, it was believed that the enemy was subjected, and that Acheen, like the rest of Sumatra, would soon be transformed into a Netherlandish possession. After the expenditure of hundreds of millions and the loss of thousands of lives in the intermittent war, the remainder of the Acheenese are as far from submitting as ever, and seem to prefer annihilation to the loss of independence. The Dutch Government entered into the war as a precautionary measure to prevent the intervention of any foreign power in the Malaysian Archipelago. The Acheenese had treated with indignity the flags of other nations as well as that of Holland. England, by the agreement of Nov. 2, 1871, withdrew the guarantee of independence to the Prince of Acheen which she required Holland to agree to in 1824. Negotiations were opened to induce the Sultan to acknowledge the sovereignty of Holland. Evading these, he applied for assistance to Italy and the United States. Fearing American intervention, the Dutch threatened war if he longer refused their terms, and sent the unfortunate expedition of 1873, followed in November of the same year by the second expedition under Gen. Van Swieten. The Dutch commander, after the capture of Kraton, the residence of the sultans, and the death of the young ruler of Acheen, proclaimed the annexation of the country, whereas the original demand was only for the suzerainty. He expected, by remaining in Kraton, to establish gradually a trade with the natives and win their friendship, and hence did not push his military advantage, from which course he was deterred, moreover, by the ravages of the cholera in his army. Leaving a detachment of 3,000, who were ordered to remain on the defensive, he withdrew the rest of the troops from Acheen. Gen. Pel, the commandant, was soon compelled by the enemy to extend his lines and undertake punitive expeditions against offending chiefs. He increased his force gradually to 8,000 men and gained important successes, when he died in 1876 and was succeeded by Gen. Wiggers. The Dutch and the Acheenese both ceased active operations for a time, but in 1878 the enemy, under their accomplished Hindoo leader, Habib Abdoe'r Rahman, attacked the chain of posts and menaced Kraton. Gen. Van der Heyden pursued and destroyed this force and purchased the submission of the leader, who had guided the diplomatic and strategic affairs of the Acheenese from the beginning, with an annual pension of 30,000 guilders. In the spring of 1879 the Dutch commander resumed the campaign. Instead of inclosing a district by a chain of outposts, he determined to occupy the important strategic points, and guard only his lines of communication. The men that had garrisoned the line of posts were set free to form flying columns to patrol the country, and prevent hostile outbreaks. In 1879 he had a force of 10,400 men. In 1880, believing his purpose accomplished, he reduced it to 6,600 men. The Governor-General was not satisfied with the pacification of the country secured by the military occupation, but wished to affirm the existence of a state of peace, and thus diminish the complaints in Holland at the cost of the occupation. He resolved to replace the military with a civil administration. As Gen. Van der Heyden refused to countenance the change, pressure was brought upon him that caused him to resign the command. Civil officials were installed and, in order to reduce military expenses, the flying columns were withdrawn, and the small posts along the routes of communication called in. The Acheenese, who had armed themselves with Beaumont rifles, renewed their attacks and depredations, while the military, restricted in their powers by the official proclamation of a state of peace, were restrained from quelling the hostile outbreak. The situation soon became so unbearable that the civil governor was superseded by one who had been trained to military life. A more energetic course of action was taken, and during the year 1884 sanguinary conflicts with the Acheenese guerrillas frequently took place.

The official hand-book of Netherlandish India for 1883 gives the extent of the district of Acheen and its dependencies as 8,712 square miles and the population as 474,800 natives, 3,310 Chinese, 479 Arabs, 1,129 of other Oriental races, and 928 Europeans. Great Acheen, the ancient seat of the sultans, which is the proper object of the conflict, has an area of only 100 square miles. Before the war it possessed a population of from 300,000 to 400,000, but in 1880 the number was already reduced to about 50,000 souls. The territory occupied by the Dutch had a length between the farthest outposts from north to south of twenty-three miles and an extreme breadth of sixteen miles. The unsatisfactory results of the efforts of the Dutch to subjugate the country are explained by the frequent changes of commanders and systems, which allowed none of the systems to be fairly tested, and by the action against the vassal states before Acheen itself was reduced to order. The losses in the field were very small, but the effects of the unhealthful climate necessitated the constant withdrawal of troops to fill the hospitals and be replaced by fresh forces. Although recruiting was extended on account of the war, there were times when almost the whole fighting force of the East Indian army was in Acheen. The cost of the war has exceeded 300,000,000 guilders.

The Nisero Affair.—The English merchant-ship Nisero, bound with a cargo of sugar from Soerabaya to England, was stranded on the coast of Acheen, Nov. 16, 1883. The crew, twenty-five in number, succeeded in reaching land in safety. They were plundered by the Malays of the coast, and then delivered by the Chief of Pangah, in whose territory they found themselves, to his sovereign, the Rajah of Tenom, who is himself a vassal of the Sultan of Acheen. A Netherlands ship of war appeared upon the scene, and its captain paid 30,000 guilders to the Rajah, who thereupon released the captain, Wodehouse, with the Chinese cook, who speaks Malay, on parole, to explain his terms. The British ship of war Pegasus was sent from Singapore with Consul Kennedy, and further offers of money were made through trusty agents. There were formal complaints to the Netherlands Government, which had already offered a large sum for the release of the captives. A Dutch naval force blockaded the ports of Tenom, and an infantry force of 1,200 men destroyed the Rajah's capital and a number of villages, January 7. At their approach the Rajah escaped with his captives two days' journey up the country. An English officer had an interview with the Rajah's adviser, February 24. It was made apparent that the Rajah's object was to embroil England and Holland in order to secure better political conditions for himself. His ports of Tenom and Bûbûn were formerly the centers of a flourishing trade, and the Rajah enjoyed a lucrative monopoly of the pepper and betel-nut trade. His territories were included in the part of Acheen that was annexed to the Netherlands. The Rajah made submission voluntarily to the Dutch authorities. Soon after, he was accused of conniving in an attack on a Dutch garrison. As a punishment Bûbûn was sacked and the ports of Tenom closed to trade. In May, 1883, a final blow was struck at the trade of Tenom, by a decree that confined general trade to seven ports in Acheen—two only on the west coast—and limited the coast-trade to vessels of fifty-six tons. The Rajah professed friendship for England, and expressed a desire to embrace a British protectorate. The conditions on which he offered to release the crew of the Nisero were the restoration of the freedom of trade, an indemnity of $400,000 for the destruction of Bûbûn and Tenom, the banishment of certain Malay enemies of the Rajah, and a quantity of arms and goods. The English negotiators were favorably impressed with the terms of the Rajah, which would open the pepper ports to English trade.

The Dutch, on the other hand, were not disposed to allow the English to gain either a commercial or a political footing on the island. The opening of the Acheenese ports to trade was objected to on the ground that it would enable the rebels to supply themselves with arms and ammunition. The Dutch authorities offered a ransom of $150,000 for the release of the prisoners, but the Rajah spurned the suggestion of mercenary motives. The British Government seemed disposed to take advantage of the situation that the pirate chieftain had created, for the purpose of resuming political power in Sumatra and promoting the Penang and Singapore trade. Lord Granville, on April 29, expressed the conviction that the captive sailors would not be released "unless the differences between the Netherlands and the Acheenese be adjusted on an equitable basis." Great Britain entered into the conventions of 1824 and 1871, with the view of securing freedom of trade and the maintenance of peace. England had refused to intervene on behalf of the Rajah of Tenom, but now offered her good offices as a mediator between the Dutch Government and the Malay chiefs, to arrange for the closing of thirteen miserable years of lingering warfare in the interests of peace, justice, and the facilities of commercial intercourse. The answer of the Netherlands, bearing date May 9, declined mediation, pleading with their mighty neighbor that if barbarous potentates can secure British intervention on their behalf, by piracy and kidnapping, such crimes would increase to the general detriment of peace and commerce. The colonial authorities found that they could not accomplish anything by a land expedition, because the Rajah carried the captives away into the interior, but they expected to bring him to reason by means of a blockade, which would hinder the free movement of commerce, but not less to the prejudice of the Netherlands than of other states. The authorities of the Straits Settlements in their dispatches reported that no arrangement was possible unless the English Government intervened to liberate the Acheenese trade and protect the Rajah. In a dispatch of May 31, Lord Granville demanded the removal of the restrictions on commerce, which confine the general trade to particular ports, and limit the coasting trade to vessels of small tonnage. The fear of the importation of munitions for the Acheenese rebels, he intimated, was no concern of British traders. At about this point the Rajah, who was officially described in the dispatches from the Straits Settlements as "high-minded," "straightforward," and "of high character," and had been addressed by the English negotiators in friendly and courteous language, grew impatient at the delay of the expected interposition, threw aside the mask of friendship, and threatened to put the captives to torture and death if the Dutch attacked him, ending his letter with a request that the English, whom he declared to be no match for the Dutch in negotiations or anything else, should write him no more, for he knew that their counsels were at an end. This insulting communication defeated the plans of those who wished to derive political and commercial advantages from the situation, and caused the English Government to confine its demands to considerations affecting the fate of the captive crew, and abandon the *rôle* of protector of the Rajah of Tenom in particular, and Acheenese rebels in general. The next proposition of the English Government was accepted reluctantly, as preferable to the preceding propositions of English mediation and of a joint guarantee to the Rajah. In accordance with the agreement reached in July, the Rajah was notified that, if he did not release the prisoners, a joint English and Dutch expedition would compel their release, but in return for their voluntary liberation the Dutch Government would raise the blockade and pay him an indemnity of 100,000 guilders. Baffled in his political schemes, in which he probably acted as the tool of the central Acheenese, the Rajah accepted the offered terms and released the prisoners in September. Twenty only of the crew were left, the others having died in captivity from starvation and other privations.

The Succession to the Throne.—The death of the Prince of Orange left the royal line without male descendants. (See OBITUARIES, FOREIGN.) Under the family laws the duchy of Luxemburg goes, in the event of the death of King William III without male issue, to the deposed Duke of Nassau or his heirs, while the throne of Holland passes to the Princess Wilhelmina, the King's only surviving child, born in 1880. The prospect of a long regency while the question of constitutional revision, which has been before the country for a year or two, is still unsettled, impelled the Chambers, in December, to adopt a bill to modify the Constitution in such a manner as to remove the restriction that forbids a revision of the Constitution during a regency, leaving it in force, however, in respect to the clauses regulating the royal succession.

The Elections.—Elections to the Second Chamber took place in November, resulting in an accession of anti-Liberals, which rendered the formation of a majority difficult. This re-enforcement of the ultra-Calvinist element compelled the abandonment for the present of the scheme of constitutional revision. The ministry determined to seek to re-establish the financial equilibrium, present a bill lowering the parliamentary franchise, and then dissolve the Chambers, in the hope of securing a working majority.

Financial Policy.—In July a syndicate was intrusted with the floating of a new 4 per cent. loan of 60,000,000 guilders, to cover past deficits at about par. Among the measures proposed for the prevention of new deficits the ministry introduced a bill to reorganize the state lottery so as to produce 601,400 guilders annually, instead of 473,000 guilders. On April 27 a monetary act was passed authorizing the Minister of Finance to melt down and sell 2½-guilder pieces up to the amount of 25,000,000 guilders. This law was passed to prevent the depreciation of the Dutch currency. Under the existing circumstances every one may discharge his debts in either gold or silver coin, and every one can have gold coins, but not silver. The Minister of Foreign Affairs issued a circular to the Dutch diplomatic representatives in November, in which he said that the Government would not avail itself of the permission unless the gold reserve of the Bank of Holland fell below 5,000,000 guilders. The circular expresses the conviction of the Dutch Government that the remedy for the present inconvenient state of things lies in the adoption of bimetallism on a large scale.

NET-MAKING. The art of net-making by hand, essentially as it exists to-day, is prehistoric. The ancient lake-dwellers of Switzerland used needles, or more properly shuttles, such as are found in every fisherman's kit, and fragments of ancient nets have been found made, apparently, precisely as fishermen make them now. The art was practiced in both continents, and was apparently discovered by races that, so far as we know, could have had no communication with one another.

Some of the different shapes of needles are here indicated. They are made of wood, bone, or metal, and the size is limited only by that of the required mesh. To charge the needle with thread, a turn is taken around the tine A in the eye of the needle, whence it is passed down one side through notch B in the end, thence up the other side round the tine, down through the notch again, and so on until the needle is full. In the double-eyed needle of course turns are taken alternately around the two tines.

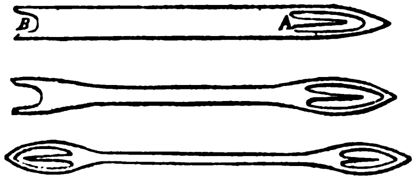


FIG. 1.

To secure uniformity of size in the meshes, sticks—variously known as "mesh-sticks," "spools," or "pins"—have been made of different forms, round, square, or pear-shaped in section, according to the taste of the maker. The usual length is eight to ten inches. Once around the mesh-stick makes a half-mesh. A stick two inches in circumference will make a mesh of four inches—one inch on each side.

The nomenclature of netting varies somewhat with localities. In England, to make a net is to "breed," "bread," or "breathe" it. "Over" is used instead of *wide*, in speaking of a net. "Accrues," "false meshes," or "quarterings" are meshes added to a row for the purpose of widening (Fig. 7). "Stole" or stolen meshes are taken up in order to narrow (Fig. 8). "Dead netting" is plain work without either accrue or stole. In this country these terms are unknown. The parts of a seine are the head, foot, wings (end sections), and "bag" (central section). A net is so many feet "deep." Short ropes at the wings of the seines are brails.

The knot that forms the intersection of the meshes is the same in all cases. It is known, however, by various names, as "weaver's knot," "fisherman's knot" or "bend," "becket-hitch," "sheet-bend," "seine-knot." A shows it before tightening, and B after. It may be made with two ends of line to fasten them together securely, or through a "bight," as the extreme end of a loop or mesh is termed by seamen. The method of making it through a mesh is that necessarily employed in netting, and in its most easily explained form is as follows: To begin a net, such as is suitable for a seine or a hammock, make a loop in the twine (B, Fig. 3). The size of

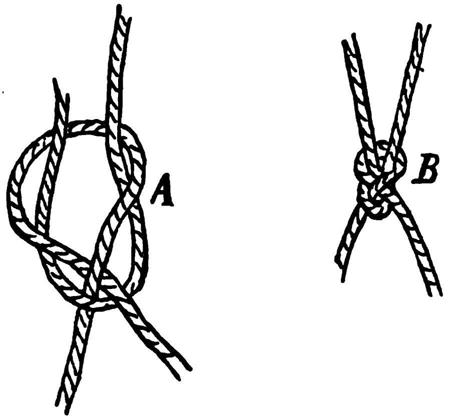


FIG. 2.

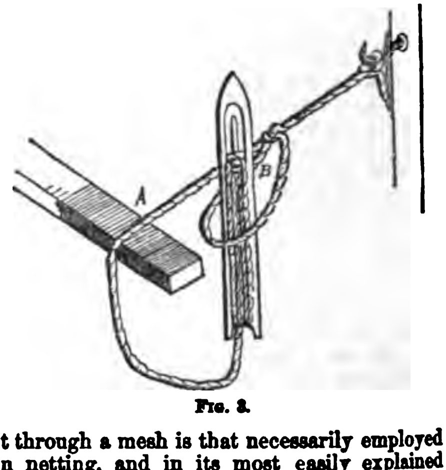


FIG. 3.

this is immaterial, but once around the mesh-stick insures an even start. Through this take a stitch, as indicated in Figs. 3, 4, and 5.

1. Hold the twine as shown in Fig. 3, with the thumb upon it at A, where it crosses the stick; 2, pass the needle up through the loop and draw the loop downward till its bight touches the corner of the stick (Fig. 4); 3, throw a turn of twine (C, Fig. 4) over the wrist and stick; 4, pass the needle up through space marked *x;* and, 5, draw it tight as in Fig. 5, ending with a firm pull in the direction of the dotted line, taking especial care that the twine, as it closes about the two parts of the loop, shall not slip over its bight.

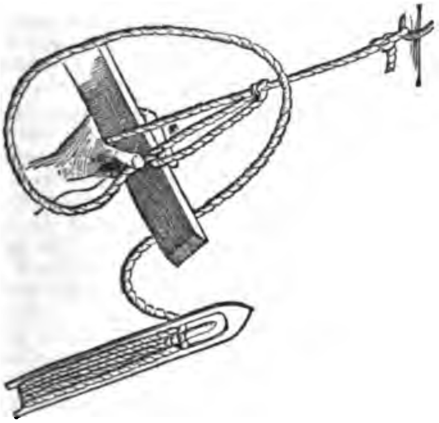


FIG. 4.

The first mesh is now made. Through it make another in the same way, and through this another, until a long string of them is made. If the net is to be sixty meshes wide, 120 meshes must be made after this fashion. When spread out on a table, with the possibly uneven meshes at the beginning removed, this series will look like Fig. 6, forming in fact the first two rows of the net that is to be.

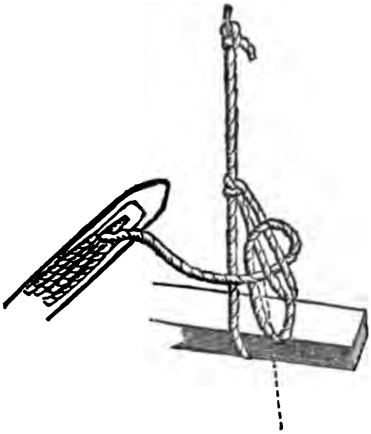


FIG. 5.

When the desired number has been completed, the third row is made by working back on the second row. That is to say, the first stitch of the third row is made through the last mesh of the second row, and so on, back and forth, adding the successive rows until the net has been made as long as required. In a small net, say seven meshes wide, the meshes by this process will be made in order as numbered, the first two rows being made together in a string as described.

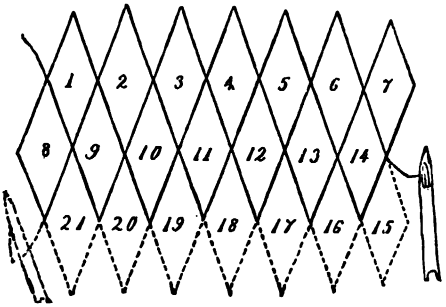


FIG. 6.

This makes a net with its meshes in diagonal rows as seen in seines and fishing-nets generally, and in netted hammocks. Nets, whose meshes are at right angles with the sides, as in tennis-nets, are made with the same stitch, but the work is started differently. A corner mesh is first made; and in order to make it four stitches must be taken as follow:

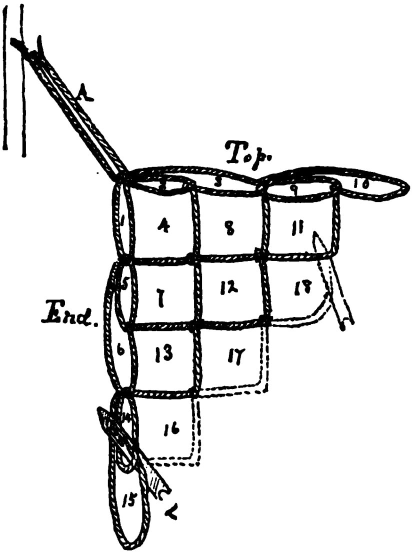


FIG. 7.

Make a large loop, which can be attached to some convenient point (A, Fig. 7). In the bight of this make two half meshes, the knots when finished lying one on top of the other (marked 1 and 2 in the illustration). In the bight of No. 2 make No. 3, and in that of No. 1 make No. 4. This last is the first corner mesh. Next make No. 5 (also in the bight of No. 1), the two knots lying on top of one another, and Nos. 6, 7, etc., as shown. The widening process is repeated at the end of each row, until the net has reached any desired width. This done, it becomes necessary to "narrow" at one side, and this is effected by taking the last stitch of the row through two meshes, instead of taking two stitches through one mesh, as is done in widening. Fig. 8 *a* shows the course of the needle in narrowing, and *b* shows the completed corner. In order to prevent mistakes, it is well to tie a bit of colored cord or other mark at the edge where the widening stitch is to be taken. The rows are now made uniformly back and forth, until the desired length is reached, when "narrowing" takes place at both edges, until the fourth and last corner is reached. It will be noted that there is an apparent contradiction of terms in the foregoing directions. The diagonal rows are *made* parallel with the edge of the net, while the square rows are *made* diagonally. The result, however, is as shown (Figs. 9 and 10).

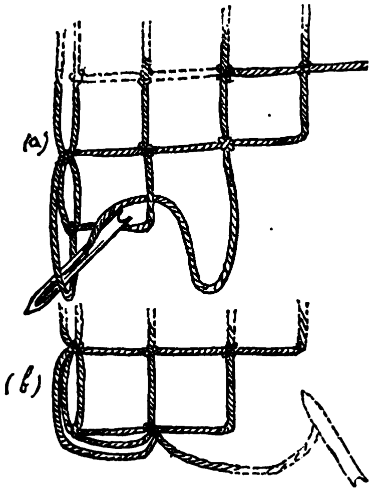


FIG. 8.

There is a more rapid way of making the hand-stitch than that here described, but it is not practicable to illustrate it, though it is easily learned by example. The stitch as described, however, is believed to produce firmer and more uniform work than the other.

A scoop, circular, or bag net, is begun in the same way as the square-meshed net described above. When a square of sufficient size has been made, say, six or eight inches, the netting becomes continuous, going round and round the square until any desired size is reached. Widening or narrowing may be effected wherever necessary, as shown in Figs. 7 and 8. This is the regulation fisherman's scoop; but it is possible to make a similar net by fastening a number of meshes together at the outset, and then netting round and round upon them, widening as the net grows. All nets of this kind are made by hand, no machinery having been invented for doing the work.

The nets thus far described are made with twine, whose length is limited only by the amount that the needle will hold. The new needleful is attached by a knot, as in Fig. 2.

In the case of a hammock, when the strain is uniformly in one direction, the ordinary stitch may be taken with the end of the new thread, on top of the knot last made. The loose ends should not be cut off close until their firmness is proved. In case of a mistake, or a break in the body of the net, the faulty meshes may be cut out and new ones made in their place, in a manner that will suggest itself to any one who has learned the regular stitch.

In a netted hammock the long cords or "guys" that support the ends are merely enlarged meshes. They are best made of a uniform size and length by winding the twine round and round the mesh-stick a sufficient number of times to insure the required length before taking the usual stitch. When making the rows, a number of meshes may be carried on the stick at once. In other words, it is not necessary to slip each mesh off from the stick as soon as it is made.

In pulling the knots tight, the fingers are soon cut or chafed by the thread, unless a glove is worn. This may be omitted, however, if the pull is delivered with the hand grasping the needle and thread, and the needle pointing directly at the knot last made.

Machine-made nets differ from hand-made in that one thread or set of threads, carried on bobbins, forms the warp, while another set forms the woof. A net-making machine was patented in England as early as 1778, but not

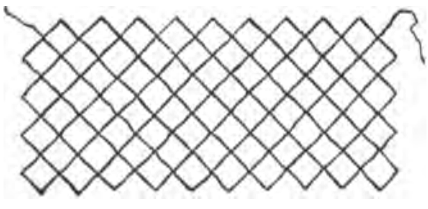


FIG. 9.—DIAGONAL MESH FOR SEINES, HAMMOCKS, ETC.

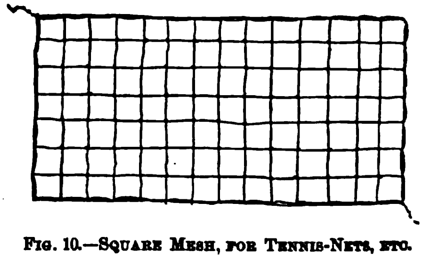


FIG. 10.—SQUARE MESH, FOR TENNIS-NETS, ETC.

until within thirty years has the trade been mainly supplied in this manner. The machines most used in the United States are those of John McMullen, B. Arnold, and Jouannin, a Frenchman. The last named, with certain American improvements, is regarded with favor by the large manufacturers. Such machines are necessarily complicated, and no very clear idea of their detailed working can be given without elaborate illustrations. It may be understood, however, that with two or more threads or sets of threads, machinery may be constructed that will make the regulation knot, which seems to be the only one that fully meets the requirements of the case. In Fig. 10 the warp thread is, for distinctness, made black, while the woof is merely outlined. The series of open black loops being made by means of pins or hooks, the other series, with the aid of many ingenious and self-acting devices, is made to pass over and through them, as shown. The number of continuous threads is not limited to two, as in the illustration, but may be indefinitely multiplied and supplied from bobbins or spools on which the thread is wound. Thus, in the Jouannin machine, two sets of threads are used, marked *a* and *b*, Fig. 11. The *a* threads are drawn into simple loops, over and through which the *b* threads are passed by means of an ingenious arrangement of hooks—one hook to each mesh—which seize the *b* threads, pull them through the *a* loops, give them a twist, and pass them over the *b* spools. This forms the knot, which is subsequently tightened, and a repetition of the process produces successive rows of meshes with great rapidity. Nets of all kinds and sizes, except circular and scoop nets, are now made by machinery, and sold at a price which has practically driven the hand-made nets out of the trade. Few American fishermen who live within reach of a market now do more than repair their own nets, but something of a demand has sprung up of late years for hand-made hammocks, tennis-nets, and the like, and many amateurs have learned the stitch as a species of fancy-work affording gentle exercise and an agreeable pastime. White and colored twine is furnished by all dealers, in a great variety of beautiful shades, and, in many of the variety-shops, needles and mesh-sticks are kept in stock. These last, however, are easily made by any one who can use the common wood-working tools.

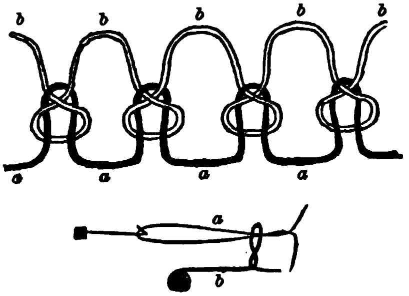


FIG. 11.

NEVADA. State Government.—The following were the State officers during the year: Governor, Jewett W. Adams, Democrat; Lieutenant-Governor, C. E. Laughton; Secretary of State, J. M. Dormer; Treasurer, George Tufly; Comptroller, J. F. Hallock; Attorney-General, W. H. Davenport; Superintendent of Public Instruction, C. S. Young; Surveyor-General, C. S. Preble. Judiciary, Supreme Court: Chief-Justice, Thomas P. Hawley; Associate Justices, O. R. Leonard and C. H. Belknap.

Constitutional Amendments.—The Governor, in his message to the Legislature of 1885, says:

> Your attention is called to the fact that five amendments were favorably passed upon by the last session, which will come before you for your consideration. If you adopt any of them, it will be necessary for you to provide the mode of submitting the same to a vote of the people. The first amendment changes the time of the assembling of the Legislature from the first Monday in January to the first Monday in February. The second amendment requires naturalization six months before the election; a residence of one year in the State, instead of six months, and a residence to ninety days in the county, instead of thirty, as necessary qualifications for an elector. The third amendment changes the mode of amending the Constitution by requiring the vote of but one instead of two sessions of the Legislature to submit the question to the people, and by making two thirds of each House, instead of a bare majority, necessary to submit to the people such amendment. The fourth and fifth amendments pertain to the mode of investing our school funds. Under our present Constitution, the school money derived from the sale of lands and other sources can be invested in United States and Nevada State bonds only. As the interest on an investment in United States bonds is only three per cent. per annum, it was thought by the last session of the Legislature best to extend the class of bonds in which school moneys could be invested. It seems, however, they could not agree upon any one plan, and therefore adopted two amendments for your consideration, one of which you will doubtless submit to the people and reject the other. One of these amendments directs that the school moneys shall be invested "in United States bonds or bonds of this State, or the bonds of such other State or States as may be selected by the boards authorized by law to make such investments." The other amendment provides that the school moneys may be invested "in United States bonds, the bonds of this State, or such other State bonds or other securities as may be authorized by law."

Consolidation of State and County Offices.—On this subject the Governor says:

> I simply give expression to the general demand of popular sentiment throughout the State, when I recommend that our Constitution be so amended as to reduce the number of State officers, and thereby economize in State expenditures. Nor is there less need of the consolidations of county than of State offices. The whole amount of taxes levied for the support of the State government for the year 1883, including Orphans' Home, Deaf, Dumb, and Blind, State Prison, Insane Asylum, salaries of officers, and all incidentals, was, in round numbers, $249,000, while the amount levied for conducting the fourteen county governments for the same year was $614,000. Among the statutory measures that will most effectually economize county expenditures, is the consolidation of judicial districts.

Other Recommendations.—The Governor recommends a constitutional amendment by which nine jurors may find a verdict in criminal causes, as is now the case in civil suits in this State. He also recommends extending the term of county officers from two to four years, and greater uniformity in the laws relating to county government, saying: "Under the present laws, we find one county (Ormsby) governed by the general salary law that has been in force for four years, but now repealed except as to this county; two counties (Washoe and Esmeralda) acting under a special salary law; five counties (Storey, Eureka, Elko, Humboldt, and Lander) acting under the law usually known as the Foley Fee Bill, and the other six counties are governed by the old fee-bill act that was in force before the passage of the salary law."

Agriculture.—Reviewing the operations of 1883, a San Francisco journal says:

> It will surprise a great many to look over the figures that have been collated, and see the amount of acreage under cultivation, the great variety of products in cereals and fruits, and the adaptability of a large portion of Nevada to cattle-ranges. Being mountainous, it is dotted here and there with valleys and plains, much of the soil of which is very fertile and will produce as much per acre as the average arable land of the country, which, in addition, is certain of being well watered by the mountain-streams. It is peculiarly well adapted to the growing of such fruits as are indigenous to the temperate zone, and the problem of their profitable production has already passed the experimental stage. The dairy interests are also being developed; so that the decadence of mining—if it should prove to be more than temporary—will be accompanied by a substantial growth of the agricultural and live-stock interests, which as they, particularly the former, are regarded as the chief source of the prosperity of a commonwealth, will no doubt result, in future years, in giving to Nevada a greater meed of solidity than she could ever hope to receive from her mining interests alone. Of the 100,000 acres of land devoted to agriculture in the State, the cultivation of barley requires about one third annually, only about 150,000 bushels of wheat being raised, while over 500,000 bushels of barley were produced during the past year. Oats, potatoes, hay, apples, peaches, pears, plums, cherries, apricots, grapes, strawberries, gooseberries, and other fruits, vegetables, and cereals occupied the remaining acreage, and good crops were the rule in the more fertile regions and where irrigation was available.

Grazing.—The State of Nevada, notwithstanding its sterility, is a fine grazing country. Sheep-walks and cattle-ranges are numerous, and it is estimated that there are not fewer than 1,000,000 head of cattle in the State, 100,000 head of horses, and 500,000 head of sheep and goats. The portion devoted to grazing does not exceed one fourth the area of the State, and, were it stocked to its full capacity, the income from this source would be near $10,000,000 annually. Its population is not above 50,000; the income of stock alone is not less than $50 for each person living in the State, and, if fully stocked, $200 per capita. The stockmen realize the advantages of this State as a beef-producing country, and are fast bringing it into use. One of the finest stock-ranges available is that section of the State lying between 28° and 38° north, and range 33° and 36° east, containing 400,000 acres. Following the meanderings of the Humboldt river, it extends about fifty miles along that stream, with not less than twenty-five miles average width. Much of the land on the river will produce a crop of grain without irrigation, and, in fact, in such years as the last, fine wheat has been grown and matured on the "bench-land." But the distance from market makes grain-raising less profitable than stock-raising.

Finances.—The report of the Comptroller for the year ending Dec. 31, 1884, shows: Total property-tax, $248,079.11; tax on proceeds of mines, $16,354.19; from miscellaneous sources, $31,917.34. The net amounts of cash paid into the State Treasury, by the several counties, for the year footed up $254,983.77; receipts from all sources, $524,857.30; apportionment to the different funds of the balance in the treasury Jan. 1, 1883, and the receipts for the fiscal year beginning Jan. 1, 1883, and ending Dec. 31, 1884, $861,195.37; amount expended during the fiscal year 1883, $571,931.33. The assessed value of all the real and personal property in the State for the year was $27,728,172.81. During the year the gross yield or value of the mines was $7,487,634.25.

The State levy, as now fixed by law, is 90 cents on each $100 of taxable property. The rate can not be reduced, in the opinion of the Comptroller. He says: "It will not, however, be amiss to say that there is not a doubt that the assessment of property could be greatly increased, the rate of taxation proportionately reduced, and equal and exact justice substituted for gross injustice by a compliance with the law on the part of assessors. The property in some counties is probably assessed at nearly its cash value, but in other counties, that which does not escape taxation entirely is assessed far below its value."

The depreciation in property valuations for 1884, as compared with 1883, is $1,160,873.78; in net proceeds of mines, $189,721.56. "The State for several years," says the Comptroller, "had less taxable values and a much higher rate of taxation than at present. The State of Nevada, instead of being bankrupt, owes no man nor corporation a dollar, and its warrants are promptly paid on presentation. Her indebtedness is all to her irreducible school funds, and the interest she pays all goes for the support of her public schools; and the debt of Nevada, over and above cash on hand applicable to its payment, does not amount to six dollars per capita of its population."

Political.—A Republican State Convention met in Virginia City on April 30, and chose delegates to the National Convention of the party. It put forth a platform containing the following resolutions:

> That the Republican party has at all times been, and still is, the friend and protector of labor, and as such considers the advent of the Chinese race into

this country dangerous and inimical to the deserved success and prosperity of American laborers.

That gold and silver have co-existed, and formed the monetary circulation of the world since the origin of human society; that the agitation against silver, threatening to destroy its value and use as money, is a blunder and a crime, which can only result in a destruction of values without any compensation.

That we demand of Congress the exercise of all its constitutional power for the speedy suppression of polygamy in the Territory of Utah.

That we renew our demand for the establishment by the General Government of a postal-telegraphic service.

Another Republican State Convention, held in Carson City on September 4, nominated candidates for Presidential Electors, William Woodburn for Congress, and Thomas P. Hawley for re-election as Justice of the Supreme Court. The platform, confined to State affairs, declared against the calling of a constitutional convention, and in favor of the reduction of the number of members of the Legislature, and officers and employés of both houses thereof.

The convention also resolved:

That it is the imperative duty of our next Legislature to devote its early and constant attention to reform legislation, that such laws may be passed as will bring about a marked reduction in the present expense of running our State and county governments, and by a reduction of the number of existing judicial districts, consolidation of county governments, State and county offices, and reduction of salaries of not less than thirty per cent.

That we are in favor of amending the State Constitution, and pledge the Republican party to that method of constitutional reform, so as to limit the regular sessions of the Legislature to forty instead of sixty days as at present.

The Democrats renominated George W. Cassidy for Congress, and presented W. M. Seawell as candidate for the Supreme Bench. They declared in favor of a constitutional convention. At the election, Nov. 4, the Republicans were successful. The vote was as follows:

OFFICE.	Republican.	Democratic.	Greenback.
Presidential electors......	7,193	5,576	26
Congressmen	6,807	5,992	..
Supreme Judge	6,755	6,073	..

The vote on calling a constitutional convention was 8,571 against, and 2,810 for. The Legislature of 1885 consists of 15 Republicans and 5 Democrats in the Senate, and 32 Republicans and 8 Democrats in the House.

Miscellaneous.—The cost of maintaining the State Prison for 1883 and 1884 was $80,803.59; number of prisoners Dec. 31, 1884, 115.

The number of children of school age (six to eighteen years) by counties is as follows: Churchill, 84; Douglas, 318; Elko, 933; Esmeralda, 267; Eureka, 840; Humboldt, 500; Lander, 603; Lincoln, 451; Lyon, 511; Nye, 160; Ormsby, 1,142; Storey, 2,445; Washoe, 1,029; White Pine, 310; total, 9,593.

The bullion product of the State (gold, silver, copper, and lead) has been given as follows: 1882, $10,363,376; 1883, $8,771,621; 1884, $8,888,939. The product of the Comstock lode was about $2,000,000 more in 1884 than in 1882; of Eureka county, $1,500,000 less.

NEW BRUNSWICK. For the latest information, see the article in the "Annual Cyclopædia" for 1883. That article was written after the adjournment of the Legislature, which has not since convened, and there are no new transactions or statistics for the current year.

NEW HAMPSHIRE. Statistics.—The State is between latitude 42° 41′ and 45° and 11′ N., and longitude 70° 40′ and 72° 28′ W. Length, 168 miles; width, 20 to 90 miles; area, land surfaces, 9,005 square miles; lakes and ponds, 220 square miles; rivers and smaller streams, 80 square miles; total, according to Census Bureau, 9,305 square miles. This territory includes all of Connecticut river along its western border, and half of Piscataqua river on the east. Population, in 1880, 346,991; increase from 1870, 28,691, or 9 per cent.; males, 170,526; females, 176,465; native-born, 300,697; foreign-born, 46,294 (increase of nearly 50 per cent.). Males of military age (eighteen to forty-four, both inclusive), 70,410; males of voting-age (twenty-one and over), 105,138. Number of dwellings in the State, 68,381; families, 80,286; minors, 130,837, or 1⅗ to a family; persons to square mile, 38·53; dwellings, 7·59; families, 8·92; persons to a dwelling, 5·07; to a family, 4·32; acres to each person, 16·61; to a family, 71·78; number of farms in the State, 32,181; acres of improved land, 2,308,112; value of farms and buildings, $75,834,389; farm-implements, $3,069,244; live-stock, $9,812,064; value of all farm products, $13,474,330. Acreage and amount of farm products, 1880—barley, 3,460 acres, 77,877 bushels; buckwheat, 4,533 acres, 94,090 bushels; Indian corn, 36,533 acres, 1,358,625 bushels; oats, 29,485 acres, 1,017,620 bushels; rye, 3,217 acres, 34,638 bushels; wheat, 11,245 acres, 169,316 bushels; hay, 583,069 tons; hops, 23,955 pounds; orchard products, $972,291; potatoes, 3,358,828 bushels; wool, 1,060,589 pounds; milk, 5,739,128 gallons; butter, 7,247,272 pounds; cheese, 307,076 pounds. Number of horses reported, 46,773; working-oxen, 29,152; milch-cows, 90,564; other cattle, 112,689; sheep, 211,825; swine, 53,487.

Capital invested in manufactures, in 1880, $51,112,263; average number of males, above sixteen years old, employed, 29,356; females, above fifteen years, 16,184; children and youth, 3,291; total wages paid, $14,814,793; value of materials used, $48,552,462; value of products, $73,978,028. Specific cotton manufactories, 36; capital invested, $19,877,084; spindles run, 944,053; looms, 24,209; officers and operatives employed, 16,529; pounds of cotton consumed, 76,386,499, which cost $8,629,063; goods manufactured, 244,145,558 yards of cloth, and 63,881,540 pounds yarn and thread; wages of operatives, $4,290,960; value of materials, $10,146,904; value of products, $17,953,403. Iron and steel manufactured, 7,978 tons; capital invested, $650,000; hands employed, 290; wages, $127,690; value of materials used, $523,355; value of products, $807,840. Fisheries—persons engaged, 914; capital invested, $209,465; value of products, $176,684. Quarries, 29; capital invested, $128,800; product, 1880, 1,920,340 cubic feet; value, $308,066. Gold, 582 ounces produced; value, $11,000. Silver, 12,375 ounces; value, $16,000. Paper, 5,480 tons; value, $1,731,170.

Persons engaged in all vocations, all ages, 142,468: in agriculture, 44,490; professional and personal services, 28,206; trade and transportation, 11,785; manufactures, mechanical, and mining industries, 58,087. Assessed value of real estate, $122,733,124; personal, $42,022,057; total, $164,755,181. Taxation—State, 1880, $395,372; county, $483,978; city, town, and school, $1,818,290; total, $2,697,640.

Number of insane in the State, 1,056; blind, 412; persons ten years old and upward, 286,188; unable to read, 11,982; unable to write, 14,302. Foreign-born persons, ten years old and upward, 42,788; unable to write, 11,498, or about 27 per cent. Native white persons, ten years old and upward, 242,811; unable to write, 2,710, or 1·1 per cent.

State Government.—Biennial elections are held in November of even years; biennial legislative sessions are held in June of odd years. At the close of 1884 Samuel W. Hale (Republican) was Governor; Ai B. Thompson, Secretary; Isaac W. Hammond, Deputy-Secretary; Solon A. Carter, Treasurer; Parsons B. Cogswell, Printer; Oliver Pillsbury, Insurance Commissioner; William H. Kimball, Librarian; James W. Patterson, Superintendent Public Instruction; Augustus D. Ayling, Adjutant-General; Irving A. Watson, Secretary of Board of Health; James O. Adams, Secretary of Board of Agriculture; John M. Hill, Secretary of Board of Equalization of Taxes; Orrin C. Moore, Edwin B. S. Sanborn, Edward J. Tenney, Railroad Commissioners; Buel C. Carter and George E. Gage, Bank Commissioners; Charles C. Rounds, Principal of Normal School; Charles P. Bancroft, Superintendent of Asylum for Insane; John C. Ray, Superintendent of Industrial School; Frank S. Dodge, Warden State Prison. Supreme Court: Charles Doe, Chief-Justice; Isaac W. Smith, William H. H. Allen, Lewis W. Clark, Isaac N. Blodgett, Alonzo P. Carpenter, and George A. Bingham, Associates; Mason W. Tappan, Attorney-General; William S. Ladd, Law Reporter. Henry W. Blair and Austin F. Pike, Senators in Congress; Martin A. Haynes and Ossian Ray, Representatives. Governor-elect, June, 1885, to June, 1887, Moody Currier. In June a Senator is to be chosen for the term expiring March 4, 1885.

Finances.—During the fiscal year ending May 31, 1884, the State receipts from all sources amounted to $1,000,977.83, and the disbursements for all purposes to $1,016,217.44; leaving in the treasury, June 1, an available cash surplus of $189,382.88; such surplus, June 1, 1883, having been $204,622.49.

Careful estimates, prepared by the State Secretary, show six preceding years of annual legislative sessions, to have cost the State $376,188.06; six years of biennial sessions, $285,386.67—a saving of $90,801.39. Few members are chosen for more than a term of two years. The State debt, June 1, 1884, was $3,176,609.20. As to a portion of its principal, amounting to $450,000, falling due Sept. 1, 1884, the Governor, in his message to the Legislature in 1883, observed that unless large sums should be appropriated for extraordinary expenses in the intervening time, this sum would be paid at maturity with the surplus of revenue. It has been so paid.

Railroads. — Following are the corporate names of the railroads operating in New Hampshire, the length and value of each road, and the tax assessment on it for 1884:

NAMES OF RAILROADS.	Miles of road in State.	Value of road and equipments.	Amount of tax assessed on each road.
Eastern	16	$425,000	$4,212 06
Boston and Maine	87·75	2,000,0 0	28,982 88
Ashuelot	25·20	175,000	2,018 74
Boston, Concord, and Montreal	154	2,550,000	30,784 71
Fitchburg	9·37	18,000	201 75
Nashua and Lowell	5·25	400,000	4,577 28
Wilton	..	250,000	3,091 75
Cheshire	42·91	1,200,000	13,907 66
Grand Trunk	52	550,000	6,794 40
Northern	82·91	2,000,000	24,567 12
Concord	34·50	2,500,000	29,806 70
Manchester and North Weare	19·50	78,000	964 68
Concord and Portsmouth	48·20	475,000	5,874 88
Dover and Winnepesaukee	28	375,000	4,540 78
Portsmouth, Great Falls, and Conway	68	875,000	4,527 37
Manchester and Lawrence	28·45	1,500,000	18,506 22
Concord and Claremont	71	600,000	7,850 17
Sullivan County	25.50	500,000	6,188 50
Worcester and Nashua	6·63	180,000	2,074 08
Mount Washington	8	180,000	1,607 71
Suncook Valley	18·87	140,000	1,694 18
Portland and Rochester	8	15,000	185 50
Monadnock	13·85	100,000	1,224 78
Portland and Ogdensburg	20	100,000	1,236 70
Wolfeborough	12	50,000	558 75
West Amesbury Branch	2	25,000	309 18
Miles	817·78	$16,711,000	$200,728 88

The aggregate amount of the tax assessed on railroads in the State for 1884 is $30,724.98 larger than for 1882, when it was $170,003.85. The excess is chiefly attributed to the increased rate of taxation.

Telephones. — Following are the corporate names of the telephone lines operating in New Hampshire, the value of each line, and the tax assessed for 1884:

NAME OF LINE.	Valuation.	Amount of tax.
Plymouth and Campton	$2,400	$29 86
N. E. Telephone and Telegraph Co.	200,000	2,478 40
Brattleborough	700	8 66
Brattleborough and Chesterfield	700	8 66
Winnepesaukee Bell	4,000	49 47
Stratford and Colebrook	800	9 89
Colebrook, Stewartstown, and Clarksville	250	3 09
Colebrook, Stewartstown, and Connecticut Lake	1,500	18 55
Total	$210,350	$2,601 40

Savings-Banks.—The savings-banks in operation June 1, 1884, numbered sixty-seven. The depositors numbered 117,317; increase in the year, 4,150. Their deposits amounted to $42,091,596.55; increase, $2,966,781.85; surplus, more than one and a half million dollars; guarantee fund, $1,699,000. In the matter of savings-banks, the last Legislature enacted some important changes, the better to provide for the interests of depositors, the principal one relating to the commissioners. Their number was reduced to two, and their compensation, which was previously paid by the banks, is now made payable by the State, at the rate of three dollars a day, while in active service, besides the allowance of mileage at ten cents a mile. The new law imposes on the commissioners a more exacting and responsible service than formerly.

Insurance.—The total fire-risks in force in the State, in 1883, amounted to $63,150,000. This sum does not include the large risks taken on many important manufacturing establishments in the Associated Manufacturers' Mutuals, that do not report to the State Commissioner. Life-risks, $12,522,675. The present system of insurance supervision was established in 1870, and it has worked advantageously to the State's interest. The last report of the commissioner says that there were twenty-two home fire-insurance companies, and fifty-nine fire-insurance companies from other States and countries, authorized to insure property in the State during the year. There were also twenty-two life-insurance companies, one accident, one life and accident, and two fidelity or guarantee life-insurance companies authorized to operate in this State. The commissioner says: "Within the last twelve or fifteen years the drift of fire-insurance business has undergone great changes. . . . When I assumed the duties of this department, it was understood that fire-insurance companies secured their profits in this State mainly in the rural districts. Farm risks were then in demand. The great bulk of losses occurred in the cities and compact towns, and the farmers complained of paying an undue proportion of the losses. Now this is actually reversed." The cities have escaped heavy losses to an unusual degree, reducing the amount paid by insurance companies, to the insured, $10,488.77. Great expenditures have been made, in the cities and large towns, in securing a water-supply, organizing fire departments, and furnishing every appliance for the speedy extinguishment of fires. In support of these statements the chief-engineer of Concord reports, for 1884, the whole loss by fire as only $1,660.05. The city underwriters admit the annual amount of insurance premiums paid to be not less than $70,000. For twelve years, since an abundant hydrant service has been furnished, the average insurance recovered has been but $19,213.59. Excess of premiums paid over that received, $50,000. The annual assessment of the one per cent. tax on premiums collected in this State, during 1883, amounted to $8,134.28.

Education.—The summary of schools for 1884 is as follows: Towns having organized schools, 235; different public schools, 2,698; graded schools, 491; town and district high-schools, 46; average length of schools in the year, 20 weeks; scholars—boys attending schools two weeks or more, 32,754; girls, 31,900; scholars under six years of age, 4,905; between six and sixteen, 53,945; over sixteen, 5,188; average attendance of all scholars, 43,723; average attendance to each school, 16½; whole number of school-children reported to commissioner, 72,769. Number of children in the State of school age, five to seventeen, both included, given by census of 1880—boys, 38,572; girls, 39,548. Teachers—males, 443; females, 3,077. Average monthly wages of male teachers, including board, $38.41; female teachers, $23.14. School-houses, 2,221; estimated value of land, buildings, and furniture, $2,331,822; value of school apparatus, $49,755; school revenue from all sources, $630,085; total expenditures, $624,125, an increase of $18,238 last year. Teachers' institutes have been organized and held in each of the ten counties, which have been attended by about 700 teachers. The Legislature of 1883 amended the school laws, providing that physiology and hygiene, including special reference to the effects of alcoholic stimulants and narcotics upon the human system, should be taught in all public schools sufficiently advanced to receive such instruction, and that all teachers should be examined upon said topics as to fitness to teach them, as one of the required subjects to receive prominent attention in the schools—the law to take effect March 1, 1884. This is believed to be a step in the right direction toward cultivating and instilling habits of temperance among the youth of the State. There appeared to be no opposition to the law, public sentiment in and outside of the Legislature pushing it forward to an early and unanimous passage. Suitable text-books are now provided for school use. By another legislative act, towns and districts were authorized to adopt a provision to supply text-books free for the use of their schools, and establish regulations therefor. The act has been accepted by some cities and towns. The Normal School, in operation since 1870, graduated twenty-one teachers in 1883. It has never been more successfully conducted than in the past year. Three hundred and forty-two graduates of normal schools have been employed in 148 towns the past year.

State Charities.—At the Asylum for Insane 341 patients were admitted during the year; 18 were discharged as recovered; 41 were improved, and 308 remained at date of report. A new building for female patients was finished and occupied. It has roomy apartments, affords accommodations for 30 patients, and is one of the best designed buildings in the country. About 300 persons are cared for by the several counties, which have enlarged and improved facilities for keeping their insane poor. New Hampshire keeps, as its beneficiaries, in institutions of other States, indigent persons of other unfortunate classes, namely, 20 deaf and dumb at the American Asylum, Hartford, Conn.; 2 at the Clarke Institute, Northampton, Mass.; 2 at the Horace Mann School, Boston; 10 at the Perkins Institution for the Blind, South Boston; and 3 at the Massachusetts School for the Feeble-minded. She pays $175 per capita for the education of her deaf-mutes.

Industrial School.—The twenty-sixth annual report of the State Industrial School for the Correction of Wayward Youth gives the number admitted since its organization as 1,164; number the past year, 142. Most of the inmates learn to read and write quite well, and solve simple problems in arithmetic correctly. The boys are placed at some kind of employment — some in the bakery and cook-room, some at farming, teaming, gardening, shoemaking, printing, and seating chairs, and the girls are taught general house-work.

State Prison.—The whole number of convicts is 140. Good order and good health among them have marked the year. No escapes have been made in fourteen years. Earnings reported June, 1884, $16,807.36; disbursements, $19,172.57; deficit, $2,365.21. By the failure of the labor contractor, the inmates were idle two months, or the prison would have been self-supporting. A new tenement-house, stable, wood-shed, and front fence have recently been built.

Board of Health.—The third annual report, 1884, gives a synopsis of experience resulting from a close and constant labor in this field. A valuable sanitary work is being accomplished, which is manifest in all sections of the State. Sanitary laws were passed in 1883—to regulate the sale and inspection of milk; drainage of land; teaching physiology and hygiene in the common schools; penalty in certain cases of nuisance; relating to sidewalks and sewers; coasting in the public streets; better registration of births, marriages, and deaths; and providing for the support of minor children. These aid the board in inculcating such measures of careful living as will insure greater health and longevity to the people. Much attention has been given to the subject of impure drinking-water from polluted wells, and to the inspection of public and charitable institutions. Imperfect returns made to the secretary, to March 31, 1883, give the number of births in the State as 6,150; marriages, 3,495 couples; deaths, 5,421.

Longevity.— By the census of 1880, it is shown that of the persons in the State eighty to eighty-four years old, both inclusive, there were — males, 1,340; females, 1,777; eighty-five to eighty-nine years—males, 475; females, 725; ninety to ninety-four years—males, 112; females, 192; ninety-five to ninety-nine years —males, 16; females, 46; one hundred years and upward — males, 4; females, 7; total, eighty years and upward, 4,694. This total shows that one person in every 73·9 reaches and passes fourscore years. Of the native white males, the average is one in every 80·8; of native white females, one in every 58·4. In comparison, the average in Vermont is one in 81·4 of the population; Maine, one in 89·5; Connecticut, one in 110·1; Massachusetts, one in 131·8; Rhode Island, one in 134·6; New York, one in 161·5; Pennsylvania, one in 206·5; New Jersey, one in 208·0.

By the census of 1880, the total of births given was 6,141; total deaths, of all ages—males, 2,769; females, 2,815; total, 5,584; excess of births over deaths, 557.

NEW JERSEY. State Government.—The following were the State officers during the year: Governor, Leon Abbett, Democrat; Secretary of State, Henry C. Kelsey; Treasurer, George M. Wright; Comptroller, Edward J. Anderson; Attorney-General, John P. Stockton; Superintendent of Public Instruction, Ellis P. Apgar; Chancellor, Theodore Runyon; Vice-Chancellors, Abraham V. Van Fleet and John T. Bird; Chief-Justice of the Supreme Court, Mercer Beasley; Associate Justices, Manning M. Knapp, Edward W. Scudder, Bennet Vansyckel, David A. Depue, Alfred Reed, Jonathan Dixon, Joel Parker, William J. Magie.

Legislative Session.—The Legislature met on January 8, and adjourned at the end of April. The following are among the acts passed:

A civil-rights bill; giving electric light and power companies power to erect poles, etc., on public roads, also to lay pipes under-ground; concerning incorporated towns and certain officers thereof, defining their powers; requiring election officers of primary elections to take oath that they have carried out the act relative to bribery, etc.; to authorize the burial of the bodies of any honorably discharged soldier, sailor, or marine, who shall hereafter die without leaving means sufficient to defray funeral expenses; for the preservation of the health of female employés employed in manufacturing, mechanical, and mercantile establishments; enacting that every person or corporation employing female employés in any manufacturing, mechanical, or mercantile establishment in this State shall provide suitable seats for the use of the female employés so employed, and shall permit the use of such seats by them when they are not necessarily engaged in the active duties for which they are employed; to provide for and secure the raising of revenue for the execution of the public duties of maintaining public schools, preventing the destruction of property by fire, preserving the public health, supporting the poor, maintaining police and keeping the highways and streets in a safe condition for public use, within the limits of incorporated cities, towns, and municipalities, in cases where the local or municipal authorities or officers fail to provide for the performance of such duties (covering the case of Elizabeth); to enable incorporated towns to construct water-works for the extinguishment of fires, and supplying the inhabitants thereof with pure and wholesome water; to provide for drainage and sewage in densely populated townships, in which there is a public water-supply; providing that in cases of telegraph, telephone, or electric-light wires attached to buildings, no lapse of time shall justify a prescription of any perpetual right to such attachment; to provide for the formation and regulation of co-operative societies of working-men; prohibiting cities having a bonded debt exceeding $13,000,000, from expending in any one year more than 90 per cent. of the amount levied during such year for all city purposes; enacting that any person who served in the military or naval force of the United States during the late war, and who received an honorable discharge, shall be entitled to the same exemption from taxation as now granted by law to members of the National Guard of this State; to provide for the employment of the inmates of any prison, penitentiary, jail, or public reformatory institution within this State; to prevent the discharge or escape of sludge acid into or upon the waters of this State; to organize and establish a State Board of Agriculture; for the better securing and enjoyment of wages to workmen and laborers in the State of New Jersey; to provide for the imposition of State taxes upon certain corporations, and for the collection thereof; for the protection of dairymen, and to prevent deception in sales of butter; relative to interest on arrears of taxes and assessments in incorporated cities; for the encouragement of free libraries in cities; to abolish and prohibit the employment under contract of convicts and inmates of prisons, jails, penitentiaries, and all public reformatory institutions in the State of New Jersey.

Corporate Taxation.—The Legislature at the last session devoted a large portion of its time to framing and perfecting two laws with reference to taxation—one dealing with railroad and canal property, and the other with the miscellaneous corporations of the State. The report of the Comptroller shows that if these laws are acquiesced in there will be sufficient money obtained thereunder to defray all the legitimate expenses of the State without imposing any direct State tax. The franchises of the railroad companies are taxed. With reference to the acts the Governor says:

> The act of the Legislature, while it is a great step in advance, does not impose upon railroad corporations the same burdens that are imposed upon the property of individuals. It limits the rate that shall be paid to the State to half of one per cent.; it limits the amount that shall be paid to the localities to one per cent., and exempts a large and valuable portion of railroad property from all local burdens. These companies pay under the act of 1884 less than 57 per cent. of the amount they would pay if their property should be assessed the same as individual property. The State Board of Assessors have imposed upon the railroad and canal companies of the State a tax of $977,628.76 for State purposes, of which $256,529.44 is upon the franchises of the companies. They have also imposed taxes for local purposes amounting to $388,523.50. The amount due to the State for the taxes of 1883, under the provisions of the act of 1876, will be about $740,000. The amount can not be accurately stated at this time, because of a dispute as to the valuation of some roads, and the litigation with the New Jersey Central Railroad Company.
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> The act should be amended so as to secure a fair tax on all express companies, whether corporate or not, doing business in this State. It should also be amended with reference to taxing palace or parlor car companies. The assessors have determined that under the wording of the act the tax is confined to business done exclusively within the limits of the State; this yields merely a nominal tax. It should be amended so as to compel them to certainly pay at least a mileage proportion of their entire business, so that the State should receive its fair proportion of tax on the gross receipts of these companies.
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> The law with reference to the taxation of oil or pipe-line companies is evaded or does not reach the largest oil company which it was intended to reach. That company returns that its business is only the manufacture of petroleum products. Its capital stock is $3,000,000. The company which transports the oil for its use only pays the State about $1,400.
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> The amount assessed against miscellaneous corporations under the act will be about $200,000. Of this amount $120,000 will probably be collectible. The act needs amendment so as to secure efficient means of enforcing the collection of the taxes levied thereunder, and for a forfeiture of the charter or a prohibition of doing business in this State where the taxes remain unpaid for a certain defined period.
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> When the State attempts to secure a uniform rule with reference to the taxation of railroad and canal companies, it is met with the claim upon the part of certain corporations that they have irrepealable contracts on the subject of taxation, which relieve them from the burdens imposed on other corporations.

But the Governor thinks that a remedy exists in the fact that most of the companies have charters that are repealable, and give the State the right to purchase the lines on payment of their cost.

Finances.—The following statement shows the aggregate amount of moneys received and disbursed by the Treasurer during the fiscal year:

FUNDS.	Disbursements.	Receipts.
State fund	$1,120,495 79	$1,065,953 33
School fund	1,837,071 25	2,007,424 66
Deaf and dumb fund	13,798 58	....
Agricultural College fund	6,960 00	6,960 00
Balance in bank Nov. 1, 1883	....	322,453 78
Leaving in bank, Oct. 31, 1884, a balance of $424,471.15, belonging to the following funds:		
State fund	137,557 04	....
School fund	286,914 11	....
Total	$3,402,791 77	$3,402,791 77

In addition to the income of the school fund the Treasurer holds leases for lands under water, given by the Riparian Commission, amounting to $1,434,819.47, on which amount 7 per cent. is due, payable semi-annually.

The Agricultural College fund, amounting to $116,000, is all invested in bonds of the State; the interest, $6,960, has been received and disbursed for the maintenance of Rutgers Scientific School.

The war account indebtedness has been reduced $100,000, being the amount of bonds redeemed Jan. 1, 1884, leaving the balance of war bonds outstanding $1,596,300, of which amount, $100,000 falls due Jan. 1, 1886.

The State fund holds securities to the amount of $1,127,487.11; and the school fund to the amount of $2,001,182.50.

The report of the Commissioners of the Sinking Fund shows that the assets of the fund amount to $968,027.57; of which $332,348.09 represent the cost of real estate that the commissioners have been compelled to take because of non-payment of interest and principal of mortgages.

The proper income of the school fund from all sources is about $165,000. Of this income $100,000 is annually appropriated for the support of schools. This leaves about $65,000 per annum, which is added to the principal of the school fund, but adds little to its income, because of the difficulty of investing in any security now allowed by law, that will yield even 2 per cent. interest.

Schools.—During the last fiscal year there was expended for public schools the sum of $2,413,876.10, being an increase of more than $98,000 over the amount expended by the State and the localities for educational purposes during the preceding year. The school property is valued at $6,350,807. The number of pupils in attendance during the year was 216,792, an increase of 4,887 over the preceding year. The school census of children between five and eighteen years of age is 356,061, being an increase of 6,819 over the preceding year. The number of male teachers is 837, and female teachers 2,850. There has been a steady decrease in the number of male teachers and a steady increase in the number of female teachers during the past ten years. In 1884 the district and city tax for building school-houses was $17,092.33 in excess of that raised in 1883.

The average attendance in the Normal School during the year ending June, 1884, was 165½, and in the Model School 345. The number of pupils graduated from the Normal School was 27. Nearly five sixths of those at the Normal School are not graduated.

The amount expended by the State during the year for the maintenance of this institution, in addition to that paid by pupils for boarding, is $15,000. There was also expended $5,000 for additions to and improvements in the boarding halls.

School for Deaf-Mutes.—The act of April 14, 1884, provided that any indigent deaf-mute, of suitable capacity, who should be a legal resident of the State, and not less than eight nor more than twenty-one years of age, should be admitted to the benefits of this institution. Three years is provided as the term of instruction, but it may be increased to eight years by the trustees. The building, repairs, and alterations have been completed out of the fund realized from the sale of the Stevens battery under the act of March 5, 1883. The number of pupils in the institution at the close of the year was 110, being 62 males and 48 females. The expense during the year was $27,550.58.

Blind and Feeble-minded.—There were 69 feeble-minded and 40 blind pupils supported in institutions of other States during the year. The amount paid for the feeble-minded was $16,148.89, and for the blind $11,536.29.

Reform School for Boys.—The number of inmates in this school, Nov. 1, 1884, was 275, being 55 fewer than the number in the school Nov. 1, 1883. The average number during the year was 323$\frac{38}{100}$. The State paid for maintenance of the institution, $40,969.25.

The institution received from the sale of farm produce, the labor of the boys, and miscellaneous sources $17,149.29. The total amount of liabilities incurred for maintenance for the fiscal year was $46,239.67, and there was also paid an overdraft at the date of the trustees' last report in 1883 amounting to $11,507.65. The trustees report that 78 per cent. of those discharged from the school have been redeemed from the error of their ways.

The average number of hours in school is three, and for work six, and the remainder of the day is devoted to amusement.

Industrial School for Girls.—There were 27 inmates in this institution at the close of the year. The cost of maintenance was $5,827.28. The trustees ask for legislation that would increase the number of inmates to 40, that being the limit of accommodation in this institution.

Morristown Insane Asylum.—The number of patients in this asylum at the close of the year was 745, of whom 156 are private patients. The expense of maintenance was $193,947.59. The balance in the hands of the management at the close of the year was $10,287.81. During the year the managers purchased 55 acres of land for $6,875, to perfect the disposal of waste water and sewage of the asylum.

Trenton Insane Asylum.—The number of patients in this asylum at the close of the year was 663, of whom 97 are private patients; of these 4 are non-residents of this State. The expense of maintenance was $157,401.86. The balance in the hands of the managers at the close of the year was $23,246.07. The managers report that the institution is overcrowded.

National Guard.—The National Guard of the State consists of 279 officers and 3,054 men, organized into fifty companies of infantry, and two Gatling-gun companies. The entire force is thoroughly armed and equipped, and furnished with the State regulation service uniform, with the exception of Gatling-gun company A, which still continues to wear the Zouave uniform used by its members during the war.

Home for Disabled Soldiers.—The number of inmates of this institution at the close of the year was 248, and the average number of beneficiaries per day 223. In addition to the regular appropriation of $25,000, the State appropriated $12,000, making $37,000 paid to the Home during the year.

State Prison.—At the close of the fiscal year there were 843 convicts in the State Prison, of whom only 370 were employed on the contracts in existence. One of the contractors, engaged in the manufacture of buttons, and employing 30 men, failed in July. Owing to the depression in business, the contractors have of late employed no more men than they were obliged to by the terms of their contracts, which, together with the failure of the button manufacturer, has caused a falling off in the receipts of the prison. The total expenses of the prison for all purposes during the year were $132,417.58; and the earnings amounted to $61,846.21, making the cost of the state prison $70,571.37. This is $9,805.06 more than in the preceding year. In addition to those employed on the contracts, 52 convicts have been employed in the erection of a wall surrounding the prison-grounds. More shops are needed, and also additional cell-room.

The Legislature, at its last session, abolished contract convict-labor in the prison, and such labor is hereafter to be utilized under chapter 158 of the laws of 1884. This act provides for the employment of convicts upon goods used in institutions under State control, and for prisoners not thus employed the Legislature has designated the "piece-price plan" or the "public-account system." After the 30th of June, 1885, at the expiration of the contracts now existing, all the inmates of the institution must be employed under one of these three plans. It is said that only a small number can be employed upon goods to be used in institutions under State control; nearly all the convicts must be either employed on the "piece-price plan" or the "public-account system." The authorities of the prison are unanimous in their conclusion that the "piece-price plan" is preferable to the "public-account system."

Charities and Correction.—An act was passed March 28, 1883, to create a Council of State Charities and Correction, to consist of six persons to be appointed by the Governor and confirmed by the Senate, the Governor being made *ex-officio* President and member of the Council. No appointments were made under this act until the session of 1884, when the members of the Council were appointed and confirmed by the Senate. There are seventy-six charitable and correctional institutions in the State, so far as appears by the returns made to the Council, belonging either to the State or to counties, cities, or townships.

Riparian Commission.—The Riparian Commission made grants in fee in 1884 amounting to $8,960.86; they executed leases amounting to $294,514.22, upon which a yearly rental is paid of $20,615.99. The board reports that the annual rentals received on leases previously executed, including $25,000 on the Morris Canal lease, amount to $64,173.89.

The total amount of grants by legislative enactment since April 1, 1864, and by the Board of Riparian Commissioners since its creation, by act of March 31, 1869, and of the principal sums for which leases have been made, to Nov. 1, 1884, is $3,112,549.49.

The interest on bonds, given for riparian grants, and the rentals on leases, from April 1, 1864, to Nov. 1, 1884, amount to $928,526.85.

Oyster-Lands.—On this subject the Governor says, in his message to the Legislature of 1885:

> The State of Connecticut received in 1883 over $20,000 from its oyster-lands; Maryland over $50,000, and Rhode Island over $11,000. In New Jersey, although the oyster-beds are almost exclusively upon lands owned by the State, it derives no income whatever therefrom, although in the majority of instances an acre of oyster-land is far more valuable in its product than an acre of land upon the adjacent shore.
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> There are in this State over 100,000 acres of oyster-land, or land that can be used for oyster-planting. Over 700,000,000 oysters are obtained from the waters of this State. At one point alone, in Cumberland county, at Port Norris, the great market for the Maurice river Cove and Delaware Bay oysters, over 500,000,000 oysters are handled yearly, and in the boats, plant, and appurtenances connected with the business at this point nearly $500,000 is invested, and over 3,000 men employed. The flourishing condition of this industry at this point appears to arise, not only from the land under water in this vicinity being particularly adapted to oyster-culture, but also because protection is afforded under the laws of the State by an association which gives a certain degree of confidence and protection to those using these beds. The result of an entire want of protection is clearly seen in Barnegat Bay. More than half of this immense bay is available for oyster-planting. Yet its waters have been almost entirely cleared of oysters by parties coming from outside of the State with vessels, and taking away the entire product so rapidly that the business is practically destroyed in these waters.

Child-Labor.—The duties of the Inspector of Factories and Workshops, and the provisions in reference to the labor of women and children in factories and other places, are prescribed in the acts of March 5, 1883, and April 17, 1884. These acts prohibit the employment of boys under the age of twelve and of girls under the age of fourteen years in factories, workshops, or establishments where the manufacture of goods is carried on. They also prescribe the hours of labor, and require attendance at schools during certain periods. The inspector reports that there are over 8,000 factories in the State, and over 15,000 children employed. The condition of the children engaged in these factories, as presented by him, is most deplorable. He says that over three fourths of them have absolutely no education whatever, and that a very small percentage of the remaining fourth have the merest rudimentary education. Among the most important of his recommendations are those for compulsory education, reduction of hours of labor of children and women, improvement of the sanitary condition of factories, providing of fire-escapes, and separate dressing-rooms for men and women.

Civil Rights.—The Legislature, at its last session, passed two important acts bearing upon the rights of colored citizens of the State. The first of these was passed after the Governor had communicated by message the fact that burial had been refused the bodies of the dead on account of color. A supplement to the Crimes Act was passed, which made such a refusal a misdemeanor. The Legislature also passed an act to protect all citizens in their civil and legal rights, so that no distinction should be made on account of race, color, or previous condition of servitude. This act makes it a misdemeanor to deny to any citizen, on account of race or color, the rights provided for in that act, and also makes it a misdemeanor in any officer or person charged with the duty of selecting or summoning jurors to exclude any citizen on account of color.

Legislation for Cities.—The Governor urges upon the Legislature the adoption of a constitutional amendment that will prohibit any city from creating any debt, under any legislative power, that shall exceed a certain percentage of the ratables.

One of the most important acts affecting cities was the act providing for raising revenue to carry on certain public duties in bankrupt cities, which duties they had failed or refused to perform under their charters. This act has been decided to be constitutional, and has enabled the city of Elizabeth to continue its schools, protect its property from fire, preserve the public health, support the poor, maintain a police force, and keep its streets in safe condition for public use. The city authorities and creditors have not yet been able to reach a satisfactory adjustment of their difficulties.

Political.—Besides Presidential Electors and Congressmen, only members of Assembly and a third of the Senators were chosen at the election of 1884. The vote for Presidential Electors was as follows: Republican, 123,366; Democratic 127,778; Greenback, 3,356; Prohibition, 6,153. Four Republican (First, Second, Fifth, and Sixth Districts) and three Democratic Congressmen (Third, Fourth, and Seventh Districts) were elected. The Legislature of 1885 consists of 11 Republicans and 10 Democrats in the Senate, and 36 Republicans and 24 Democrats in the House.

NEW MEXICO. The following are the Territorial officers: Governor, Lionel A. Sheldon; Secretary, W. G. Ritch; Chief-Justice of the Supreme Court, Samuel B. Axtell; Associate Justices, Joseph Bell, Warren Bristol; Attorney-General, William Breeden; Auditor, Trinidad Alarid; Treasurer, A. Ortiz y Salaza.

Legislative Session.—An act of Congress, approved Feb. 14, 1884, provided that "the legislative proceedings, records, and laws of said Territory shall be printed in the English language; that the members elected to the Territorial Legislature of New Mexico in November, 1882, and all vacancies legally filled since that time, if any, are hereby declared to be the legal members of the Legislature hereby authorized, subject to all valid contests; the said Territorial Legislature shall convene on the third Monday in February, 1884, and shall not continue in session exceeding forty legislative days. The next Territorial Legislature of New Mexico shall convene in the year 1886, at such time as may be fixed by the Legislature."

In pursuance of this act, the Legislature met on Feb. 18, and adjourned April 30.

Besides the school and assessors' laws, and the act authorizing a quarantine against the importation of diseased cattle, many useful acts were passed, as follows:

One compelling the people to work on the roads, which never received much attention; an act requiring agricultural lands to be fenced in certain localities; a stock law, prepared by a committee composed of representatives of the several stock associations in the Territory, which is satisfactory to the stock-men; a valuable act on the subject of *habeas corpus*, mandamus, and prohibition, and one authorizing the compilation of the laws, which had not been attempted since 1865, and never had been done intelligently. An act was also passed regulating private banks, which had been shown to be a great necessity, as recent failures of unregulated banks had caused serious losses to the people. After the most strenuous efforts had been made for years, without success, to secure property-rights to married women, a very liberal act was passed on that subject, and also a most comprehensive and proper law on the subject of municipal corporations. Many acts were passed simplifying and improving the practice and proceedings in the courts, and settling the estates of deceased persons. Excluding those for the penitentiary and Capitol buildings, the appropriations were less than usual, and general expenses were considerably reduced.

General Condition.—The Governor, in his report to the Secretary of the Interior, dated October 6, says: "In almost every respect it is apparent that there is progress in New Mexico. This results from a more general intercourse among all classes of the people of the Territory and with those of other localities, and from a better understanding of necessities and resources. Railroads have opened the country to the spirit of advancement. The barriers of distance and differences in language have been practically removed."

Agriculture.—This year there has been a considerable increase in agricultural productions. The production of cereals, vegetables, and fruits is nearly, if not quite, sufficient to supply the home consumption.

Mining.—There are no statistics on the subject of mining from which an accurate statement can be made. Ores are reduced in considerable quantities at Socorro, Lake Valley, Silver City, and Georgetown, and to some extent in other localities, and large quantities are transported out of the Territory for reduction. There is no law requiring reports on the subject, and the miners have not so generally perfected their organizations that, through them, information approximately accurate can be obtained. It is believed that the yield in 1884 was much greater than ever before.

Stock-Raising.—There can not be fewer than a million head of cattle in the Territory, and as many sheep. The sheep are probably decreasing in numbers. The great and continuous fall of snow caused considerable loss in northern parts of the Territory, and there is an irrepressible conflict between cattle and sheep rancheros, which may, at not a very distant day, drive the sheep business to the wall. That cattle do not thrive on pastures occupied by sheep, and that sheep are destructive to grasses, are well-known facts.

Financial.—The assessment returns show an increase in taxable property to the extent of $4,000,000, and assessments do not by any means embrace all the taxable property. The increase in three years has been $16,000,000. The law exempts railroad property, except that of the Atlantic and Pacific, from taxation for six years after the completion of the respective roads. On March 1, 1886, at least $4,000,000 of railroad property will be taxable, and the next year $4,000,000 more.

The Legislative Assembly at the last session authorized the construction of a penitentiary, and the issue of the bonds of the Territory for that purpose to an amount not exceeding $150,000, payable ten years from date, with interest at 7 per cent. per annum, payable semi-annually. On the 1st day of July last $75,000 of the bonds were issued, and the board of managers has directed that the remaining $75,000 shall be issued on the first day of January next. The law also imposes an annual tax of one half mill on the dollar on the taxable property of the Territory, to pay the interest on the bonds as it becomes due, and to create a sinking fund to pay the principal.

The Legislature also authorized the construction of a Capitol building, and the issue of bonds for that purpose to the amount of $200,000, payable twenty years from date, with interest at 7 per cent. per annum, payable semi-annually, and imposed a tax sufficient to pay the interest for fifteen years, and thereafter a larger tax to pay the principal of the bonds. A tax of one third of a mill will be ample, probably, for the next few years, to pay the interest, and thereafter a smaller tax. The law provides that $100,000 of the bonds shall be issued this year and $100,000 next.

Education.—The Legislature also passed a school law which is an improvement on any the Territory has ever had. It imposes greater restraints upon improper expenditure of the school funds, and severe penalties for abuses and neglect of duty on the part of school officers. There is also an increase of tax of one half mill on the dollar for school purposes.

Convicts.—Convicts are now kept in the Kansas Penitentiary, where 65 were in confinement early in the year. The expense for maintenance and transportation for the years 1882 and 1883 was $13,286.35.

Irrigation.—A large part of the lands of the Territory are useless without irrigation, and are not supplied with streams. The Governor asks Congress to appropriate a liberal sum to sink wells and build reservoirs.

Election.—The vote for delegate to Congress, on November 4, resulted as follows: Democratic, 12,271; Republican, 9,930; bolting Republican, 5,192.

NEW ORLEANS EXPOSITION. The idea of a general exposition of natural resources, industries, and arts in the southern part of the United States was first broached in 1880. It was believed that such a display would do much to bring to the attention of the world the capabilities of the Southern States, and, by a comparison of their condition with that of the rest of the country and of other countries, incite their own people to more energetic efforts to develop their resources. It was also regarded as a means of bringing them into closer commercial relations with the rest of the country, and consequently into more harmonious political and social relations. The quickening of trade with other countries, especially those of the Western Continent to the south of the United States, was also one of the anticipated effects. The exhibitions at Atlanta, Ga., and Louisville, Ky., were too strictly local in their character and limited in scope to serve the desired purpose, and a great World's Fair in the South continued to be a subject of discussion and tentative effort. In October, 1882, the National Cotton-Planters' Association at its annual meeting adopted a resolution that the Exposition so much talked of should be held in New Orleans, opening in 1884, as a celebration of the centenary of the cotton industry of the country. The first record of cotton as a factor in the foreign trade of the United States appeared in the shipment in 1784 of six bags, amounting to about one bale, from Charleston, S. C. This idea of a celebration of the cotton centenary was adopted, and it was determined to make an exhibition of the culture and manufacture of cotton, and the machinery used in its treatment, a conspicuous feature of the proposed World's Fair. The subject was brought before the Congress of the United States at the session following the action of the Planters' Association, and an act was approved Feb. 10, 1883, incorporating the World's Industrial and Cotton Centennial Exposition, giving it the sanction and encouragement of the national Government, providing for the appointment by the President of a commissioner and alternate commissioner for each State in the Union, authorizing the appointment of foreign representatives, providing for the free admission of foreign exhibits, and otherwise affording the legal encouragement and privileges required. The definite location of the Exposition was subsequently determined upon. It was proposed at first to accord it to the city that would make the highest bid toward carrying out the scheme successfully, but as that did not promise well, it was decided that New Orleans was the most appropriate place, and that it should be located there provided a guarantee were furnished for the necessary financial support. This was promised, and the Exhibition Company was organized under the act of Congress.

The next step was to raise funds, and the people of New Orleans, with the aid of certain railroad and other corporations, subscribed to the stock of the company to the amount of $500,000. The city government contributed $100,000, to be devoted to the erection of a Horticultural Hall, which was to remain and become the property of the city after the close of the Exhibition. The State of Louisiana appropriated $100,000, and contributions were made by other States to the funds of the organization. An appeal was made to Congress for a loan of $1,000,000, which was granted. The total of funds assured before active operations were begun was $1,608,000, which was somewhat increased afterward. Notice was given to foreign governments, through American ministers and consuls, that the Exposition would be held at New Orleans, opening on the 1st of December, 1884, and closing May 31, 1885, and efforts were made to secure a representation of the arts and industries of foreign nations. The President appointed commissioners for the several States, and in most of them legislative aid was given to promote a creditable display of their products. The officers appointed to carry out the work of preparing the buildings and collecting exhibits were the following:

E. A. Burke, director-general and chief executive officer; F. C. Morehead, commissioner-general; G. M. Torgerson, supervising architect; F. N. Ogden, chief superintendent; S. H. Gilman, consulting engineer; Parker Earle, chief of department of horticulture; George B. Loring, chief of department of agriculture; B. K. Bruce, chief of department of colored exhibit; Samuel Mullen, chief of department of installation; Charles L. Fitch, chief of department of transportation; B. T. Walshe, chief of department of information and accommodation; Thomas Donaldson, chief of department of ores, minerals, and woods; John Eaton, chief of department of education; William H. H. Judson, chief of department of printing and publishing; C. W. Dabney, Jr., chief of department of Government and State exhibits; Mrs. Julia Ward Howe, chief of department of women's work.

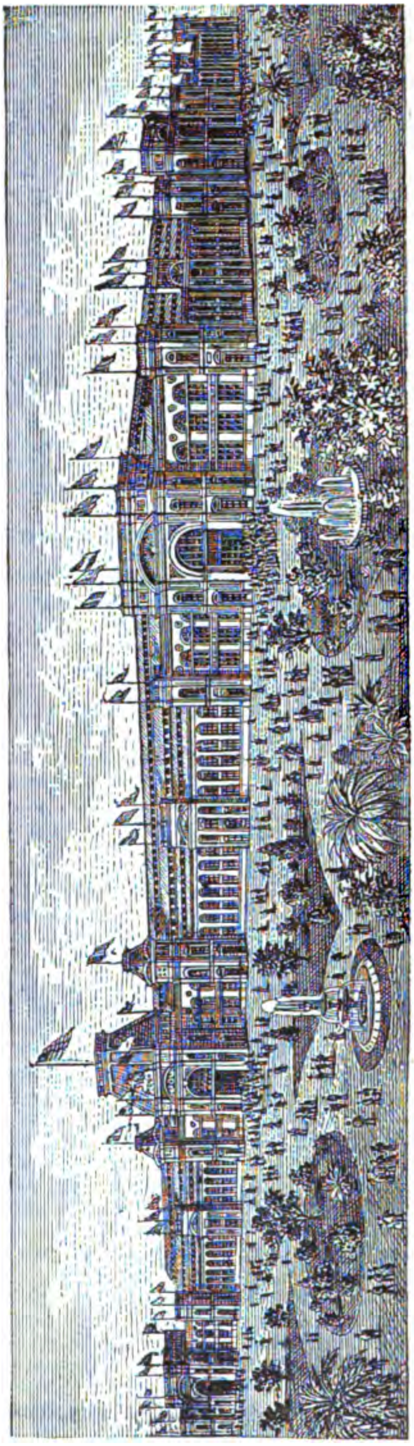
Commissioners to visit various parts of the United States and several foreign countries, to enlist public interest and promote preparations for representation at the exposition, were appointed by the Board of Managers. A number of foreign governments took action and appointed representatives to take charge of the interests of their people in connection with the matter. The general classification and grouping of exhibits was determined upon as follows: 1, agriculture; 2, horticulture; 3, pisciculture; 4, ores and minerals; 5, raw and manufactured products; 6, furniture and accessories; 7, textile fabrics, clothing and accessories; 8, the industrial arts; 9, alimentary products; 10, education and instruction; 11, works of art; 12, natural history.

The site selected for the Exposition was an unimproved tract of ground of 245 acres, known as the Upper City Park, lying on the river-front about 4½ miles above Canal Street. It was part of a larger area formerly occupied by the United States Government for military purposes. It was acquired by the city for park purposes, but never inclosed or improved, and the only natural ornaments were some fine avenues of live-oak trees heavily draped with Spanish moss. It was laid out by the Exposition management in grass-plots, and planted with the shrubs and flowers of temperate and semi-tropical climes, and ornamented with fountains, bridges, and electric lights. The Main Building was placed near the center of the inclosure, fronting to the east, and with its southern end toward the river. This structure covered thirty-three acres, and was the largest ever erected for exhibition purposes. It was 1,378 feet in length and 905 feet wide, built wholly of wood in a series of trussed sections divided only by rows of tall pillars. It was covered by a continuous roof, constructed largely of glass. No partitions or courts broke the continuity of the vast space. In the center of the building was a music hall, capable of seating 11,000 persons, with a stage accommodating 600 musicians, backed by a large organ specially constructed for the Exposition. The Music Hall was separated from the surrounding space only by rows of pillars, surmounted by open Gothic arches, and there was an unbroken view over the whole interior, which was surrounded by spacious galleries twenty-three feet high, reached by elevators and convenient stairways. The exterior of the building was simple, broken only by numerous windows and the square towers that surmounted the entrances at the middle and end of the main front of the two ends. Over the main entrance in the center of the eastern front was a high bell-tower, containing a set of chimes, from the top of which a fine view of the surrounding country could be obtained. Over this entrance was an allegorical group in bronze, representing the aboriginal and modern life of the country, and in a niche on either side a statue, one representing Columbus and the other Washington. About one third of the width of the building at the rear was occupied by machinery, and at the southern end of this an extension 120 feet wide was carried out a distance of 570 feet, to be devoted to mills and factories in operation. At right angles with this extension and stretching to the river-front was a long building devoted to saw-mills.

The second building in size was known as the Government Building, and was designed for the exhibits of the United States Government and of the several States. Its general style and mode of construction were similar to those of the Main Building. It was 885 feet long by 565 feet wide. It was situated to the north of the larger structure, in such a position that its western side, in which the main entrance was placed, was nearly in line with the eastern side of the former. The exterior walls were 43 feet high, carried up here and there into square towers, of which those at the middle and ends of the sides were of imposing height. The interior space was unbroken by partitions, and surrounded by a continuous gallery 40 feet wide. The third building in size was the Horticultural Hall, which was constructed of iron and glass, as it was intended to be a permanent feature of the park. This was 600 feet long. The width of the main body of the structure was 100 feet, but a central transept carried it out to 194 feet. Over the middle of this rose a glass-roofed tower, 90 feet high, immediately under which was a large fountain. The Art Building was placed nearly in front of the Main Building. It was constructed of corrugated iron and glass, the light being admitted entirely from the roof. It was 250 feet long and 100 wide, with a massive Doric portico. A rotunda, 50 feet square, designed for a statuary display, occupied the center of the building, from which extended four galleries, 100 feet long and 50 feet wide. A space 2,080 by 780 feet to the northwest of the Main Building was devoted to the live-stock quarters. There were four separate structures for horses and two for cattle on this ground, each 386 feet long and 72 feet wide, arranged in parallel rows. There were accommodations in these for 1,000 horses and 500 cattle, and within the area occupied by this feature of the exhibition were open spaces for the display of the stock, and a half-mile track. Premiums amounting to $125,000 were offered for the best displays in this department.

A large building was erected in the southeastern corner of the grounds by the Mexican Government, to serve as a headquarters for a detachment of cavalry and infantry, accompanied by a band, and for the offices of its representatives. It was in the general style of a Mexican *hacienda*, 288 feet by 192, inclosing an open court-yard, 115 feet by 184, with an interior gallery designed in part for a display of plants, flowers, and birds. The Mexican Government also provided a separate octagonal structure near the Main Building for its display of minerals. The building was of ornamental iron-work, 78 feet in diameter, each face of the octagon being 32 feet long, and was surmounted by a fine dome 30 feet high. The general design was Moorish. Minor structures for restaurants and public accommodation and for special private exhibitions were distributed in the intervals between the larger buildings.

The water-supply for the grounds and buildings was furnished from the river by two compound duplex Worthington pumps, with a capacity of 4,000,000 gallons a day. There were five miles of pipe for its distribution, including 10,000 feet in the Main Building alone, which contained 56 fire-hydrants. The pressure was supplied by a stand-pipe, 100 feet high and 42 inches in diameter. Above this stand-pipe



NEW ORLEANS EXPOSITION.—THE MAIN BUILDING.

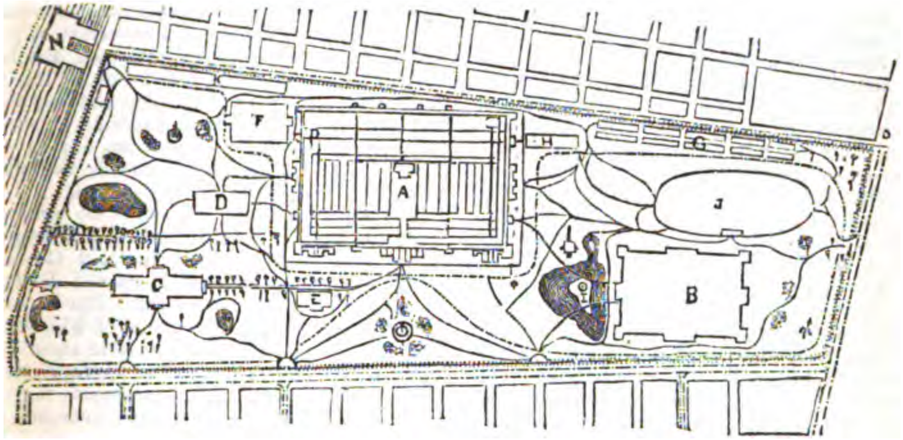
was an electric light of 100,000 candle-power, and five others of 36,000 candle-power, on towers 125 feet high, illuminating the grounds at night. Fifty additional Jenny arc lamps were distributed at various points. The Main Building was lighted by the Louisiana Electric Light Company with 800 arc lamps of 2,000 candle-power each. The Brush Electric Illuminating Company furnished the out-door lights and the 300 arc lights in the Government Building. The Edison Company furnished the light for the Art Building, Music Hall, and the offices and smaller spaces of all the buildings, with 4,800 incandescent lamps. An interesting feature of the ornamentation of the grounds was a garden of semi-tropical plants near the river-front to the south of the principal buildings. It included groves of orange, banana, lemon, mesquit, and maguey, and spaces devoted to the flora of Louisiana, Florida, California, Mexico, and Central America. In front of the Mexican quarters was a separate garden of plants characteristic of that country, including many forms of the cactus, in the midst of which was a large fountain.

After the Exposition organization was formed and the plans were laid, the liberal responses from foreign governments, the several States, and intending private exhibitors, caused a gradual enlargement of many of the proposed features of the Exhibition, and, as little more than a year was allowed for making the actual preparations, it was not ready for opening on the day originally fixed. It was therefore postponed until December 16. Even then the arrangements were far from complete, and a considerable portion of the exhibits were not in place. On the opening day the streets of New Orleans were gayly decorated. A military parade preceded the start of the official party for the Exposition grounds, and some of the companies attended it as an escort. This party included the Governor of the State, the mayor of the city, a number of representatives of other States and countries, members of the United States Cabinet, and those officially connected with the Exposition. It proceeded to the grounds by way of the river, and the ceremonies took place in the Music Hall, in the center of the Main Building. They consisted of an opening prayer by the Rev. T. DeWitt Talmage, of Brooklyn, N. Y.; an address by Director-General Burke, turning over the buildings to the Board of Management; a response by the President of the Board, Mr. Edmund Richardson; a telegraphic communication to the President of the United States, informing him of the readiness of the Exposition; his reply, declaring it formally opened; the starting of the engines in the machinery section on this announcement; congratulatory addresses by the mayor of New Orleans and the Governor of Louisiana; a poem by Mrs. Mary Ashley Townsend; music by the Mexican band and Currier's band from Cincinnati; and the receipt of dispatches of congratulation from various quarters. The President of the United States had been unable to accept the invitation to be present and formally open the Exhibition, and, on account of the shortness of the session then begun, it was impracticable for Congress to be represented. The Government was, however, directly represented in the presence of Secretary of the Interior H. M. Teller and Postmaster-General Frank Hatton, in addition to its official representatives on behalf of the Government's share in the Exhibition. It was also arranged that the President should open the Exposition by an electric communication. He awaited the signal in the East Room of the White House at Washington, in the midst of a distinguished company, including committees of the two houses of Congress. Each step in the proceedings at New Orleans was announced by telegraph, and the address of the President of the Board of Managers, presenting the Exposition to the President of the United States, was trasmitted verbally. Mr. Arthur read his response before the company, and it was immediately transmitted to New Orleans. The President then touched an electric key, which gave the signal for starting the machinery in the Main Building.

The Main Building was devoted to general exhibits, foreign displays, and the machinery department. The area covered by it was 1,656,030 square feet, and, including the galleries, it had a floor-space of nearly 2,500,000 square feet. It compared with the area covered by other great exhibitions as follows:

	Feet.
Crystal Palace, London (1862)	1,400,000
London Exposition (1851)	959,384
Paris Exposition (1855)	545,934
Paris Exposition (1867)	456,923
Vienna Exposition (1873)	430,500
Philadelphia Main Building (1876)	872,320
Atlanta Exposition (1881)	107,520
Louisville Exposition (1883)	677,400
New Orleans World's Exposition, Main Building alone	1,656,030

The area was divided by aisles having an aggregate length of over six miles, and illuminated at night by 800 arc and 15,000 incandescent electric lights. The space was laid off in rectangles designated by letters and numbers on the pillars marking their limits. Along the main front of the building, on its eastern side, in projections of the wall, were arranged the various offices connected with the management and administration of the enterprise. Next to these, and separated from them by the first longitudinal aisle, was a space 24 feet wide extending the whole length of the building, devoted to raw and manufactured products, ores, minerals, and woods. Inside, and parallel to this, was a division 48 feet wide for textile fabrics, clothing, etc. Another space of equal width was devoted to alimentary products; and next to this a space 24 feet wide contained educational and literary exhibits. Across the southern end to the machinery section, the general exhibits of merchandise and the products of industry and skill were contained, and the corresponding space at the northern end was occupied by a large and varied display of agricultural machinery and implements used in all the processes from the breaking of the soil to the final preparation of the products for use. The central area on both sides of the Music Hall was assigned to the foreign displays. The countries represented here were Mexico, Honduras, Guatemala, United States of Colombia, Venezuela, Nicaragua, Costa Rica, San Salvador, Jamaica, Belize, Brazil, Denmark, Sweden, Norway, Great Britain, France, Portugal, Spain, Italy, Austria, Hungary, Russia, Belgium, Germany, Japan, Siam, China, Turkey, and Asia Minor. By far the largest of these collections of exhibits was that of Mexico, covering an area of 160,000 square feet. The general classification in these sections included minerals, woods, natural products, raw materials, manufactured articles, and works of skill and design. The representations of the Central American countries were more complete than ever before made at a world's fair, but those of the West Indies and South America, with the exception of Jamaica, Brazil, and Venezuela, were not extensive. The galleries extending along the eastern front and across the ends of the building to the machinery department were devoted to a variety of special exhibits of manufacturers and others. Among the general exhibits of the Main Building many of the manufacturing and trading establishments of the United States were represented.



THE GROUND PLAN.—SCALE 1,340 FEET TO THE INCH.

A. Main Building.
B. United States and State exhibits.
C. Horticultural Hall.
D. Mexican Building.
E. Art Gallery.
F. Factory and mills.
G. Live-stock stables, etc.
H. Restaurant and refreshments.
I. Grand Fountain, eighty feet high.
J. Live-stock Arena.
K. Saw-mills and wood-working mach'y.
N. Wharf, Mississippi river.

The machinery section, occupying 300 feet of the width of the Main Building, contained with the extension 471,800 square feet of area. The boiler-house and repair-shop were placed outside of the building, and separated from it by a broad roadway. The steam was supplied by twenty batteries of boilers, and transmitted through a double-riveted steel pipe 30 inches in diameter and 700 feet long. The main engine-room occupied a space 300 feet long and 50 feet wide across the middle of the machinery section. The aggregate power afforded by the boilers was 5,200 horse, and by the 24 separate engines 4,500 horse. The largest engine was a Harris-Corliss of 650 horse-power, the band-wheel of which was 24 feet in diameter and 60 inches wide. There was also a Reynolds-Corliss engine of 550 horse-power, made in Milwaukee, and others of smaller size from different manufactories. There were 10,600 feet of shafting in all, propelling a vast variety of machinery, including 40 dynamos of the Edison, Brush, and Louisiana Electric Light companies. Pumps were also operated supplying 4,000,000 gallons of water a day. The machinery in operation illustrated nearly every phase of manufacturing, mining, and the application of power artificially to the processes of modern industry. The Factories and Mills Extension was devoted mainly to processes of treating cotton, sugar-cane, and rice, the leading products of the South. Newly invented machines for picking cotton from the bolls were exhibited, and from these the fiber passed through all the processes of opening, lapping, ginning, cleaning, baling, and compressing, and thence to those of manufacture into yarns, threads, and cloths. The grinding and pressing of the seed for oil was also illustrated. Machines for the cutting, shredding, grinding, and pressing of sugar-cane, and the reduction of the juice, and the clarifying and refining of sugar, were shown, as were those for the harvesting and milling of rice. Extending from the rear of the Factories and Mills Building was a structure nearly 1,000 feet long, containing a series of forty saw-mills, in which the rough logs were reduced to every form of manufactured lumber.

The display of the United States Government occupied a broad section across the entire width of the Government Building. An appropriation of $300,000 was made by Congress for this feature of the Exhibition. The officers of administration occupied the extreme eastern end of this section, and the exhibits were arranged thence across the building in the following order: Department of the Interior, with an area of 22,670 square feet; the Smithsonian Institution, with an area of 19,965 square feet; the Agricultural Department, 10,780 feet; War Department, 7,014 feet; Naval Department, 6,815 feet; Treasury Department, 2,030 feet; Department of Justice, 968 feet; Post-Office Department, 5,876 feet; and State Department, 3,300 feet. Among the exhibits of the Interior Department were contributions from the Land-Office, consisting largely of maps, charts, pictorial and statistical representations, and a large collection of ores and minerals from the public lands. The Patent-Office contributed over 5,000 models, and many pictorial representations of inventions and mechanical designs. The Bureau of Education exhibited models of school architecture and furniture, apparatus, charts, text-books, and other appliances and illustrations of various methods of teaching, including those of institutions for the deaf and dumb and the blind. A large and interesting display was made of the Bureau of Ethnology, illustrating especially the antiquities of the Indian country. The Smithsonian Institution made a full display of its scientific publications; the Fish Commission exhibited models of many species of fish, apparatus for artificial hatching, boats and other appliances for catching fish, and many photographs illustrative of the fishing interest; and a large collection of specimens, including stuffed and mounted animals and birds, was furnished by the National Museum. The Geological Survey presented relief-maps, and an interesting collection of specimens. A series of photographic transparencies illustrated features of geology and ethnology in the Rocky Mountain and Pacific coast regions, and a series of panoramic views of the cañons of the Colorado was presented. The space occupied by the Department of Agriculture contained systematically arranged collections of products of the soil, pictorial representations in botany, entomology, horticulture, arboriculture, etc., together with charts and statistics in great variety. The chief feature of the War Department exhibit represented the work of the medical staff and the hospital service. The Navy Department made a display of models, ordnance, torpedoes, surveying, and other instruments, charts, equipments for Arctic exploration, etc., together with an astronomical clock connected by electricity with the Naval Observatory at Washington. The Treasury Department included in its exhibit illustrations of the Light-house and Life-Saving Service, and specimens of the work of the Bureau of Printing and Engraving and of the Mint. The most prominent feature of the State Department display was a globe fifty feet in diameter of different colored glass, showing the geographical and political divisions of the earth, with the area, population, principal productions, and industries and commercial interests graphically delineated. Grouped about this were specimens of the products and manufactures and charts illustrating the trade of various countries. This section also contained a collection of portraits of public men connected with the history of the Government. The Post-Office Department constructed a model post-office with all the appliances of the mail service, in which business was actually carried on during the Exposition. The mail-cars, pouches, and other post-office agencies were fully shown.

The separate State exhibits were grouped upon the floor of the Government Building on either side of that of the national Government, being supplemented by special displays of several railroad companies. The Exposition managers set aside the sum of $5,000 for each State and country to promote their special displays, and in many cases appropriations were made by the State governments for the purpose. These means were supplemented by private effort, and the result was a remarkable display of the resources, products, and varied interests of the several States. The Southern States and the Northwestern States and Territories, and those of the Pacific slope, were represented with special fullness and variety.

The State exhibits differed according to the contributions made by their citizens, the efforts of their governments, and the taste and judgment of those having them in charge. The prevailing plan included specimens of the minerals—in some cases of the soil as well—building and ornamental stone, woods and wild productions, grasses, grains, vegetables and fruits, manufactured products, works of skill and art, and the appliances of education and mental cultivation. New Hampshire and Florida presented models in relief of the surface and topographical peculiarities of the States. Kentucky displayed a series of photographic representations of scenery, buildings, cattle, etc. Colorado and some other Western States and Territories presented scenic displays on a large scale, and in many cases picturesque structures were formed of some of the leading products of nature and industry. Several States included in the exhibits collections of the animals, birds, fishes, and fossils found within their borders. In the sections of Dakota and Montana there were illustrations of camp-life and of hunting, mining, etc. Ores and mineral specimens were especially prominent in the displays of Colorado, Nevada, Arizona, New Mexico, and California. Coal and iron were conspicuous features of the displays of Kentucky, Tennessee, and Alabama; cotton, of those of Mississippi, Georgia, and South Carolina; tobacco, of Virginia; sugar and rice, of Louisiana; fruits, of Florida. The Northeastern State exhibits were characterized by a variety of manufactured articles. The displays of the railroad companies were made up chiefly of the minerals and agricultural products of the sections which their lines traversed.

The Horticultural Hall was devoted to displays of fruits and plants from the States of the Union and from foreign countries, Mexico, Central America, and the West Indies being well represented. A hot-house, 250 feet by 25, occupied the southeastern part of the building, and contained a profusion of tropical plants. The corresponding spaces at the sides of the rest of the building were devoted to a great variety of growing plants from temperate and semi-tropical regions, while fifty feet of the width of the building through the middle of its whole length was taken up with tables on which ripe fruits and vegetables were displayed. Premiums amounting to $32,000 were offered for the finest displays and best varieties of fruits and plants.

The Agricultural Exhibition was under the direction of Dr. George B. Loring, the United States Commissioner of Agriculture, and the immediate superintendence of the Hon. George Y. Johnson, of Kansas. It included several divisions in which premiums were offered. These comprised displays of fat stock; horses, mules, and donkeys; dogs; poultry, and pet stock; cattle; dairy products; sheep and goats; swine; farm and garden products; farm machinery and utensils; machinery for production of agricultural products; humane inventions, and buildings. The Dairy Exhibit occupied 60,000 square feet, of which 10,000 was refrigerated. Over 10,000 packages of butter and 5,000 of cheese were displayed.

Among other special exhibits were those illustrating the cultivation of cotton and the manufacture of the fiber, and the process of cultivating and harvesting rice and sugar, and preparing the products for the market.

There was a special exhibition of woman's work, for which $50,000 were set apart by the Exposition Management. It was under the charge of Mrs. Julia Ward Howe, of Boston, as Chief Commissioner, and an efficient staff of assistants from the various States. The space assigned to it was the west gallery of the Government Building, where it occupied 710 feet in length and the whole width of the gallery, of 40 feet. A separate section was assigned to each State; but in a few cases, including those of Texas and Wisconsin, the displays of woman's work were included in the State sections on the main floor. The exhibits included many works of art and design, needlework in variety, useful inventions, literature, etc. The funds were increased by private subscription and in other ways, and the display was considered the most varied and complete ever made of the products of feminine skill, ingenuity, and industry.

There was also a department for the special exhibition of the work of the colored race, under the charge of the Hon. Blanche K. Bruce, of Mississippi, as Chief Commissioner, with a special commissioner from each State. For this also $50,000 was set apart by the management. It occupied the gallery at the north end of the Government Building.

Aside from the educational features of the State exhibits there was a collective exhibition of educational appliances, methods, etc., which occupied the east and south galleries of the Government Building.

It was several weeks after the opening before all the departments of the Exposition were in a completed state, and the attendance during this period did not fulfill the expectations of the managers. The receipts did not fully cover the expenses of administration, and there was a considerable deficit in consequence of the fact that the expenses of preparation had largely exceeded the estimates.

NEW YORK (STATE). The session of the Legislature, which began on the first day of January, came to a close on the 16th of May. Dennis McCarthy, of Syracuse, was made President of the Senate, to appoint the committees and preside in the absence of the Lieutenant-Governor. Titus Sheard, of Herkimer county, was chosen Speaker of the Assembly. The Senate was composed of 19 Republicans and 18 Democrats, and the Assembly of 76 Republicans and 52 Democrats.

Action of the Legislature.—The most important work of the session, and that which occupied the largest share of attention, related to the administration of municipal affairs in the city of New York. Mr. Frederick S. Gibbs and Mr. Theodore Roosevelt, of that city, as chairmen respectively of the Senate and Assembly Committees on the Affairs of Cities, were largely instrumental in shaping and directing legislation on this subject. Two investigations were ordered relating to the matter, which ran through nearly the whole time of the session. The Senate Committee on Cities undertook an inquiry into the working of the Department of Public Works of the city of New York; and a special committee of the Assembly, with Mr. Roosevelt at its head, made an investigation extending, so far as time allowed, to all departments of the city government. The investigation of the Senate committee resulted in no practical action. Three separate reports were made at the very end of the session by different members of the committee, involving considerable disagreement as to the facts found. An incident of this investigation was the arraignment before the bar of the Senate of a witness who, under the advice of counsel, refused to answer questions propounded to him by the committee. He was declared in contempt, and committed to jail in Albany. The matter was brought before the Supreme Court in that district, and the power of the Senate to commit for contempt was sustained. The Assembly special committee made a searching investigation, and submitted a report on the 14th of March. Abuses were discovered in the offices of the county clerk, register, surrogate, and sheriff in the collection and retention of unlawful and extravagant fees. Several bills were submitted for the reform of these abuses. Two of these affected the county clerk's office. One provided for a salary of $15,000 a year for that official after the expiration of the term of the existing incumbent, and required all fees to be strictly accounted for, and turned into the treasury of the city. The other required estimates to be submitted to the Board of Apportionment for the expenses of the office, for the employment of clerks, etc., and allowances to be made by the board as in the case of other municipal departments. One bill was submitted affecting the register's office. It provided for a salary of $12,000 a year, and required all fees to be accounted for, and the appointment and compensation of clerks and subordinates was made subject to the approval of the Board of Estimate and Apportionment. Another bill was intended to prevent the exaction in the surrogate's office of fees not authorized by law, and the employment there of persons not legally connected with the office; and took from the Board of Aldermen all control over the employment and compensation of subordinates. The latter was provided for as in other cases, the surrogate submitting estimates for the expenses of his office to the Board of Estimate and Apportionment. It was not deemed expedient to supersede the fee system in the sheriff's office, but the power to make allowances for service in conveying and caring for prisoners, in which extravagant overcharges had been discovered, was taken from the Board of Aldermen, and lodged in the Board of Estimate and Apportionment. A bill was also submitted abolishing imprisonment for debt, except in certain specified cases, and another repealing the act that permitted the transfer of prisoners from the city prison to the charge of the sheriff in the county jail. The special committee continued its investigation by the permission of the Assembly, and made a supplementary report on the Police Department on the 15th of May, too late in the season for any practical action. Much evidence of abuse in the appointment of members to the force, and of inefficiency, especially in the suppression of gambling, was found, and the committee recommended the substitution of a single police commissioner for the existing four-headed commission. In closing the report the committee said:

> In handing in this, our last report, we feel obliged to say that, judging from information received by us, there are several other departments in the city government (notably the Board of Excise, the Comptroller's office, and the Department of Docks) which stand in need of a thorough overhauling. And as a result of our observations of the general workings of municipal politics, we would urge that several changes be made in the charter of the city; in especial, that the municipal election be held in the spring, that the mayor's term be made to last for three years, that all departments be made single-headed, and that all appointees of the mayor go out of office with him.

Acts affecting Municipal Administration.—Legislation for the reform of the municipal administration of the city of New York had been initiated before the report of the Assembly committee was submitted. Mr. Roosevelt had introduced a bill abolishing the power of the Board of Aldermen to confirm the appointments of the mayor, leaving the latter untrammeled in his choice of heads of departments and other officers, of whom the appointment was by law placed in his hands. This was to go into effect with the year 1885. A public meeting was held in New York, and a committee of fifty-three citizens was appointed to promote this and other measures of municipal reform. The bill passed the Assembly February 20 by a vote of 70 to 51, twelve of the affirmative votes being cast by Democrats, and seven of the negative votes by Republicans. It passed the Senate March 5 by a vote of 24 to 7, five of the affirmative and all the negative votes being cast by Democrats. In signing the bill, on the 17th of March, the Governor filed a memorandum answering the objections that had been urged before him, and giving his unqualified approval of the principle involved.

The power of removal was in no way modified, and a bill giving to the Mayor of Brooklyn the power to remove his own appointees at pleasure was defeated. A bill was introduced in the Senate by Mr. Gibbs, providing that the terms of such officers as were to be appointed by the Mayor of New York before the close of his term of office, should end on the 1st of February, 1885, so that their successors might be selected by the newly elected mayor, under the law freeing him from the necessity of securing the approval of the Board of Aldermen. In the Assembly an amendment was adopted, providing that such successors should go out of office with the mayor appointing them, but neglecting to make permanent provision for the tenure of those holding the offices to be affected, while retaining in force the general provisions of existing law on the subject. This act as amended passed both houses near the end of the session, but, when considered by the Governor after the adjournment, failed to receive his approval. In giving his objections he said:

> One of these defects is that it actually makes no provision in the tenure of office act for the appointment of any officer or head of departments after the immediate successors to those in office. The bill, as it stands now, fixes and regulates the terms of office of only such officers as shall be appointed during the remainder of the term of the present mayor. Under it the next mayor can only appoint successors to such officers as shall be appointed by the present mayor during the remainder of his term. The present mayor could defeat the evident intention of the bill by allowing the present incumbents to hold over till the expiration of his term. I say could, I do not suppose

he would. Further, in fixing the terms of the appointees of the next mayor, the bill provides in the same sentence for two limitations to such terms, that is four years from the 1st day of May, 1885, as provided for by the present law, and one year and eleven months from Feb. 1, 1885. From the last limitation the word "officers" has been omitted, though embraced in the others.

A bill providing for three park commissioners for New York instead of four was vetoed by the Governor at the same time on account of "defective and careless drafting," which, he said, made it "a jumble of contradictions." Bills making the comptroller of the city elective for a term of three years, and providing for the election of a President of the Board of Aldermen by the people, were passed with little opposition, and received the approval of the Governor. The bills reported by the special committee of the Assembly received the support of the Citizens' Committee of Fifty-three, and a public meeting was held in New York to promote their passage. Those affecting the offices of county clerk, register, surrogate, and sheriff became laws before the end of the session. An effort was made to transfer the Bureau of Elections of the city from the charge of the Police Commissioners to that of a commission made up of the chief judges of the four city courts. This excited considerable political opposition on the Republican side, and was defeated in the Assembly two days before adjournment by a vote of 58 to 63—39 of the negative votes being cast by Republicans and 24 by Democrats.

A number of other measures affecting the city of New York occupied a large share of time during the session. One, increasing the salaries of policemen of the three grades from $800, $900, and $1,000 a year to $1,000, $1,100, and $1,200, respectively, became a law. The same act provided that 25 per cent. of the excise money of the city should be devoted to the police pension fund. The fees of Sandy Hook pilots were reduced about 25 per cent. An effort to place the Health Officer of the Port on a salary, and to provide for the support of the office and of the Quarantine Commission from the fees, was defeated. A bill was passed and approved requiring all wires of telegraph, telephone, and electric light companies to be placed underground after Nov. 1, 1885, and forbidding the erection of any more lines on poles in the streets, in cities of 500,000 inhabitants and more. An important act amending the building laws and limiting the height of buildings in New York city was defeated. A bill authorizing the acquisition of lands for new parks in New York city above the Harlem river, in accordance with the recommendations of the commission of 1883, was passed. A bill providing that municipal elections be held in the spring, that the mayor's term be three years, that all departments be single-headed, and that their heads hold office only during the term of the mayor appointing them, failed. The constitutional amendment providing for general legislation only for the government of cities which was proposed in 1882 was defeated at this session, while that limiting the power of cities of 100,000 inhabitants to incur indebtedness was approved and submitted to the people.

A bill amending the civil-service act of 1883 to make its application obligatory in all cities of 50,000 inhabitants and over was introduced in the Assembly by Mr. Clinton, of Erie county, and passed after various efforts to modify or defeat it. Attempts to exclude police officers and firemen from its operation were defeated; but an amendment was adopted giving a preference in appointments to honorably discharged soldiers and sailors. The bill as finally passed applied the methods of the law to all cities in the State without regard to population.

Street Railroad Act.—There was a long contention over a general street surface railroad bill, owing to the efforts of rival interests to secure or defeat its passage. The constitutional amendment of 1875 prohibited the passage of special acts authorizing the construction of street railways, and no general act had been passed, owing to the attempts of special interests to secure advantages. This year the draft of an act had been submitted by the Railroad Commissioners, but a company in New York city had proceeded under the rapid transit act to lay out lines of surface road to be operated by cable traction, and had secured the favorable action of a commission. It came to the Legislature to secure an extension of time for the commission acting in its behalf, an amendment of the law favorable to its project, and the defeat of the general surface railroad bill. Representatives of actual and projected lines of street railroads became interested in defeating the cable scheme, and securing the passage of the general act, and out of this rivalry a sharp contest arose in the lobbies and chambers of the Legislature. The result was the defeat of the cable scheme, and the passage of the general surface railroad bill, with an amendment prohibiting the construction of surface roads under authority of the rapid transit act. The principal feature of the act was the requirement of the consent of the local authorities and of a majority in interest of the property-owners along the line of any proposed road, or, failing the latter, the favorable decision of a commission appointed by the Supreme Court to determine whether the projected road ought to be constructed, before any company could build or operate a surface railroad in any city. The use of the tracks of one company by another for the distance of 1,000 feet without the consent of the former was provided for, and the way was left open for the adoption of other motive power than horses, with the consent of property-owners and local authorities. All companies acting under the law were required to pay into the treasury of the city in which their roads were operated 3 per cent. of their gross receipts for the first five years, and 5 per cent. thereafter, and to keep the pavements between and adjacent to their tracks in repair. The opposition to the bill was carried before the Governor, but he approved it, and gave in a memorandum filed with it his reasons for not regarding the objections as valid.

A company having an old franchise for an underground railroad in Broadway, New York, secured the passage of a bill through both houses so modifying and enlarging its privileges as to permit the excavation of nearly the entire street-way, and the construction of a railroad on the arcade plan with separate tracks for through and way travel and underground sidewalks, etc. This was vetoed, on the ground that it was opposed by property-owners, whose rights were not sufficiently guarded.

Protection of Adirondack Forests.—The question of protecting the Adirondack region from the destruction of the forests was strongly urged upon the attention of the Legislature, and a bill was introduced at the instance of the New York Chamber of Commerce providing for a commission to ascertain the proper boundaries for a State reservation, and to acquire the land included therein. This met with strong opposition from the northern counties, and, after a number of substitutes had been considered, a bill was finally passed providing for the appointment of a commission to investigate the subject and report on the necessity of legislation. This commission was appointed by the Comptroller, and consisted of Prof. C. S. Sargent, of Harvard University; D. Willis James, of New York; William A. Poucher, of Oswego; and Edward M. Shepard, of Brooklyn. Their investigation was made during the summer and autumn, and their report was submitted to the Legislature of 1885.

Prison-Labor.—The subject of contract labor in the prisons and penitentiaries of the State occupied much attention. The question of its abolition had been submitted to the people at the election of 1883, and was favored by a large majority of those voting upon it. At the beginning of the session a bill was introduced in the Assembly by Mr. Howe, of New York, at the instance of the State Prison Association, providing for the appointment of a commission to inquire into the working of the various systems of employing convicts, and make a report with recommendation, not later than the 1st of March. This was passed, and Theodore W. Dwight, George B. Sloan, Walter N. Thayer, Norman N. Allen, and Darius A. Ogden were appointed on the commission; but there had been so much delay in the passage of the measure that in the time allowed they could only make a preliminary report, and ask for an extension of time. Meanwhile, a bill was passed, against the advice of the Superintendent of Prisons, prohibiting the making of any new contracts or the renewal of those existing. On the 1st of March a bill reached its final passage extending the time of the commission, and still leaving the scope of its inquiry such as to include the contract system. This was vetoed by the Governor, on the ground that the commission had then ceased to exist, and because the abolition of the contract system was not recognized and the object of inquiry limited to providing a substitute for it. Another bill was brought in, reviving the same commission and allowing it until the 15th of January, 1885, to complete its investigation, but this failed to pass, and the matter was left with the contract system practically abolished, nothing provided to take its place, and no agency set at work to prepare a substitute, or guide future legislation.

Miscellaneous Legislation.—Among the other bills passed during the session was one prohibiting the manufacture and sale of oleomargarine and other imitations of butter, and providing for a commission to see that its provisions were enforced. Under this Josiah K. Brown, of Oneida county, was appointed Dairy Commissioner. A new bill prohibiting the manufacture of cigars in tenement-houses, intended to avoid the defects on account of which a former act for the same purpose had been declared unconstitutional, was passed. The sum of $1,000,000 was appropriated to continue the work on the new Capitol. An effort was made to secure the adoption of the codification of the civil law of the State known as the Field Civil Code, but without success. Various efforts to change the excise regulations of the State, including a constitutional amendment prohibiting the manufacture and sale of intoxicating liquors, were defeated. A bill prohibiting members of the Legislature and others employed in the public service from receiving and using free passes on railroads was defeated, and one providing that not more than twelve hours' work a day should be exacted from conductors and drivers on street-cars was vetoed by the Governor on the ground that there was nothing in it to prevent a reduction of wages corresponding to the reduction of the hours of labor, and it could be of no practical benefit to workingmen on street-railways.

Investigations.—A special committee of the Assembly made an investigation into the management of the Western House of Refuge, at Rochester, during the session, and submitted an unfavorable report. It said that many charges that had been made were unfounded, but the dormitories were dreary, cramped, and unfurnished fastnesses, fit only for felons, the hospital accommodations totally inadequate, the educational provisions far from satisfactory in their administration, the methods of discipline very faulty, excessive and cruel punishments being inflicted by irresponsible overseers and unfit assistant superintendents, and the system radically defective and in need of thorough revision. Recommendations for improvement were made, but no legislative action was taken. The Governor, in vetoing certain items of appropriation for increasing the means and facilities of this institution, said:

> The institution for which these appropriations are intended has within a few months been investigated

by a committee from its Board of Managers, and also by another appointed by the last Assembly. Each committee reported that such a condition of affairs had been permitted to exist in this reformatory as, to say the least, was calculated to impair the confidence of the people in the management and thus diminish its usefulness. Since these reports were made public, efforts to fill the places of some of the managers whose terms had expired, failed in such a manner as to plainly indicate a determination on the part of at least some members of the board to perpetuate its management. It is well for tax-payers to know whether the State has control of these institutions, and it is well for the people to inquire whether abuses in a house of refuge, intended for the care of children, should not be corrected by a change of management. I have carefully abstained from any interference with appropriations for the maintenance and repair of this institution as now conducted; but I deem it my duty to prevent the present management from extending its field of operations at the expense of the State.

On recommendation of the Governor, a special committee of the Assembly was appointed to investigate, during the recess, charges of irregularity and extravagance in expenses for the repair of armories and arsenals. The committee proceeded at once to its investigation, and on the 16th of July filed with the Secretary of State a report sustaining the charges. It showed that extravagant expenditures had been made, and alleged that there was corruption in the making of contracts. The general conclusion of the committee was given in the following language:

> The committee are of the opinion that Gen. Wylie, by reason of his delegating to Mr. Deegan authority in the management and supervision of repairs and neglecting to have proper supervision or make personal inspection of the acts of Mr. Deegan as superintendent in the making of contracts, or in requiring written reports as to the amount, necessity, and value of contemplated repairs, and payment of bills without requiring any written reports as to the manner in which work had been performed, and giving contracts without competition, and requiring no formal contract to be entered into for the performance of the work, and in the loose and unbusinesslike management of his department, has been unfaithful and derelict in the discharge of his duties to the State. The committee recommend the enactment of a law requiring a detailed statement of all expenditures in the military department to be made to the Legislature before the 15th of January annually, and that all contracts for the doing of work or furnishing supplies in the military department involving the expenditure of $100 or upward shall be in writing, executed in duplicate, one filed in the office of the Chief of Ordnance, and the other in the office of the Adjutant-General.

One result of the investigation of affairs in New York city by the special committee of the Assembly was an application to the Governor for the removal from office of Sheriff Alexander V. Davidson, on charges based upon evidence taken by the committee. The case was not taken up by the Governor until the month of September, when the sheriff was notified to appear and make answer to the charges. A motion to dismiss them because not duly certified was denied, and the proper certification directed to be made, but the case was not decided before Governor Cleveland resigned his office at the beginning of 1885.

The Political Canvass.—The political canvass in the State was specially interesting, owing to the fact that two of its prominent citizens, President Chester A. Arthur and Gov. Grover Cleveland, were regarded as possible candidates of the two political parties for the office of President of the United States. Each had zealous supporters and vigorous opponents in his own party. The President was opposed largely by men who had formerly been hostile to Senator Conkling and Gen. Grant, and who were in favor of the nomination of James G. Blaine, and was also regarded with disfavor by some of the independent elements of the party and the more ardent advocates of civil-service reform. The opposition to Gov. Cleveland came chiefly from the Tammany organization in the city of New York, to which his course as Governor had not been satisfactory.

The Republican State Committee met in New York on the 4th of March and issued a call for the party convention to be held at Utica on the 23d of April. It was announced that four delegates at large and four alternates to the National Convention were to be chosen, and also district delegates and alternates in case such representatives should not have been selected in the districts before the meeting of the State Convention. The option of choosing the district delegates in district conventions not less than fifteen days prior to the State Convention was announced. There was some controversy over the question of holding district conventions, but they were in every case held, leaving to the State Convention only the choice of delegates at large. After the meeting of the committee, the question was also raised as to the propriety of nominating two candidates for judges of the Court of Appeals, the only State officers to be elected this year, at the same convention that was called to choose delegates to the National Convention. This was not authoritatively settled until the convention met, when it was decided to make the nominations, and the two incumbents of the bench, whose terms were to expire, Charles H. Andrews, Republican, and Charles A. Rapallo, Democrat, were nominated without opposition. The friends of Arthur and Blaine were very nearly equally divided in the convention, and the balance of power was held by seventy-six representatives of the Independent element, who favored the nomination of Senator George F. Edmunds, of Vermont, for President. These men, by skillful management and a combination with the Arthur men, secured the choice of Andrew D. White, Theodore Roosevelt, John J. Gilbert, and Edwin Packard, as delegates at large to the National Convention at Chicago. These men were not identified with either the Blaine or the Arthur faction, and with the exception of the first were known to favor the nomination of Edmunds. The platform adopted declared, among other things, that the Republican party of the State expressed—

> Its satisfaction with the honest, frugal, and intelli-

> gent governmental expenditures, the reduction of the public debt and interest charges, and the relieving of the people from unnecessary burdens, accomplished by Republican management.
>
> Its approval of that policy of protecting home industry from foreign competition which has, through a century of national being, encouraged immigration, rewarded labor, fostered enterprise, and assured unparalleled progress and prosperity, all variations from which policy have been the occasion of business confusion and disaster, and which, therefore, is alike justified in intelligence and by experience.
>
> Its purpose that equal civil rights shall be maintained under the guarantees of the Constitution everywhere in the land, and that the franchise shall be respected so that every voter shall have a free ballot which shall be honestly counted.
>
> Its recognition of the national obligation imposed by the enfranchisement of an uneducated race, its appreciation of the extraordinary burdens thus laid upon certain Commonwealths, and its cordial approval of legislation within just constitutional limits which shall extend Federal aid to the various States in the work of education.
>
> Its wish for the removal of all unjust restrictions upon American shipping interests, the development of our maritime industries, and, as incidental thereto, the establishment of our navy upon a footing in keeping with modern necessities and our dignity as a nation.
>
> Its adherence to a sound financial policy which dictates the immediate suspension of the coinage of the standard silver dollar, the retirement of the trade-dollar, and the inflexible adjustment of the currency to the single standard of gold.
>
> Its protestation against that policy in Congress which, in the weakness and imbecility of the Democratic majority of the House of Representatives, has disturbed the smooth and satisfactory courses of business and material affairs that had been established under Republican auspices, and that by ill-advised and inexcusable assaults upon wisely matured and advantageous legislation has brought the business and the industries of the country to the verge of uncertainty and distrust.

A resolution was also adopted requesting the National Convention to provide that, "in future national conventions, representatives shall be proportionate to the number of Republican voters of the State and congressional districts respectively." Candidates for Presidential Electors were named for all the districts, and members of the State Committee to conduct the canvass were chosen, the delegates from each district designating one member.

The meeting of the Democratic State Committee to issue a call for the convention was held at Albany on the 21st of May, and Saratoga was selected as the place, and June 18 as the time, for the State Convention. "All Democratic electors of the State, and such citizens as will, irrespective of past differences, unite with them in an effort to secure a pure, economical, and constitutional administration of the Federal Government," were invited to join in choosing three delegates from each Assembly district. The adherents of Gov. Cleveland were active in obtaining delegates to the State Convention, and their efforts were encouraged by the nomination of Mr. Blaine by the Republican National Convention in June, as those Republicans irreconcilably opposed to his candidacy were understood to regard Mr. Cleveland favorably. The opponents of the Governor were not united in behalf of any other candidate. When the convention met, a majority of the delegates were favorable to Cleveland; but their strength was not sufficient, or the opposition was known to be too determined, to justify an effort to pledge the delegates to the National Convention to his support. The delegation of the Tammany organization in the city of New York demanded that, instead of the twenty-four representatives allowed to them in previous conventions, they should have a number equal to that accorded to the rival organization known as the County Democracy. Their demand was granted without opposition. The resolutions adopted included instructions to the delegates to the National Convention to act and vote as a unit, and no opposition was made to this. The resolutions adopted were as follow:

> That the Democracy of the State of New York, assembled to appoint its delegates to the National Convention of the party, commits to those delegates, in association with the representatives of the party from the other States, the general declaration of Democratic principles upon national issues, at the same time recognizing that no issue can be more important than the election of the President of the United States, whose character and public reputation shall give to the whole people assurance of an honest, impartial, and efficient administration of the laws without suspicion of personal ends or private interests.
>
> That as a declaration concerning matters of State government, this convention adopts and affirms the resolutions of the conventions of the party in 1874, 1876, and 1882, to which the people of the State have given hearty approval; that it recognizes the duty of the Legislature to respect the popular vote in 1883 for the abolition of the contract system of labor in the prisons, and that it heartily commends anew the efficient and upright administration of Grover Cleveland.
>
> That the delegates to the Democratic National Convention to be appointed are hereby instructed to enter that convention as a unit, and to act and vote as a unit in accordance with the will of the majority of the members thereof, every delegate or alternate occupying the place of a delegate to be bound by this rule, and in case of the absence of both delegate and alternate from any district the vacancy to be filled by the vote of the majority of the delegation.

Delegates at large were chosen on nomination by a committee, and were Daniel Manning, Edward Cooper, Lester B. Faulkner, and John C. Jacobs. The district delegates were selected by the representatives of the several districts and confirmed by the convention. The candidates for electors were named, and Andrews and Rapallo were nominated for Judges of the Court of Appeals. The proceedings of the convention were entirely harmonious; and while the friends of Gov. Cleveland were confident that they had secured the delegation to the National Convention, this was disputed by their opponents until the fact clearly appeared at Chicago in July (see UNITED STATES). The opposition to Cleveland came chiefly from the Tammany organization in New York city, and from the friends of Mr. William Purcell, of Rochester. Mr. Purcell, who had been nominated on the electoral ticket, declined the use of his name, and also withdrew from the editorial charge of the Rochester newspaper which he had long conducted, after the nomination had been made at Chicago, though he subsequently gave his adhesion to the national ticket.

A convention of the National Greenback-Labor party was held in the city of New York on the 30th of August, and nominated an electoral ticket in the interest of Gen. B. F. Butler's candidacy for President. A Prohibition ticket was also put in the field, pledged to the support of John P. St. John.

Result of the Election.—The Independent revolt against the candidacy of Mr. Blaine had considerable strength in the State, especially in the cities of New York and Brooklyn, where committees engaged in an active canvass against him. Mr. Cleveland received the formal support of the Independent Republicans so far as they were organized. While the Tammany organization in New York city made no secret of its dissatisfaction with Cleveland's nomination, it gave a formal pledge of its support to the national ticket. It refused, however, to unite with the other factions in any political demonstration, and made its own nominations for local offices. The canvass was very warmly contested, and the result of the election was so close as to cause anxiety for some days lest it should not be clearly established by the returns. There were charges on both sides of an intent to falsify the result, and the count was very closely watched. No grounds for any specific allegation of fraud at the election or irregularity in the counting, beyond those clerical errors for the correction of which the law provided, were discovered. The State Board of Canvassers met at Albany on the 19th of November, and on the 21st the result of the vote for Presidential Electors was officially declared. The highest vote for a Democratic elector was 563,154, for a Republican elector, 562,005; difference, 1,149. The lowest vote for a Democratic elector was 563,048, for a Republican elector, 561,971; difference, 1,077. The difference between the highest Democratic and lowest Republican vote was 1,183, and the difference between the votes for the candidates at the head of the respective tickets 1,047. The highest vote for any candidate on the Prohibition ticket was 25,006, lowest, 24,948; for the name at the head, 24,999; highest for the People's party ticket, 17,004; lowest, 16,751; head, 16,955. The total vote was 1,171,263. The total vote for Judges of the Court of Appeals was 1,057,798 and 1,057,816, respectively, for the two places to be filled. Andrews received 1,089,896, and Rapallo 1,089,414. Candidates of the Prohibition and People's parties were voted for; the highest vote for the former being 23,150, and for the latter, 6,870. Of the thirty-four representatives in Congress, Republicans were chosen in seventeen and Democrats in seventeen districts. In the Eleventh and Twenty-eighth Districts there were no Republican candidates. The State Senate remained unchanged as elected in 1883—Republicans, 19; Democrats, 13. Of the Assemblymen chosen, 73 were Republican and 55 Democratic. The constitutional amendment restricting the power of cities of 100,000 inhabitants and more to incur indebtedness and levy taxes was ratified by a vote of 499,661 to 9,161, the total vote being 508,944, and the majority in its favor 450,378. The following is the amendment:

> No county containing a city of over one hundred thousand inhabitants, or any such city, shall be allowed to become indebted for any purpose or in any manner to an amount which, including existing indebtedness, shall exceed ten per centum of the assessed valuation of the real estate of such county or city subject to taxation, as it appeared by the assessment-rolls of said county or city on the last assessment for State or county taxes prior to the incurring of such indebtedness; and all indebtedness in excess of such limitation, except such as may now exist, shall be absolutely void, except as herein otherwise provided. No such county or such city, whose present indebtedness exceeds ten per centum of the assessed valuation of its real estate, subject to taxation, shall be allowed to become indebted in any further amount until such indebtedness shall be reduced within such limit. This section shall not be construed to prevent the issuing of certificates of indebtedness, or revenue bonds issued in anticipation of the collection of taxes, for amounts actually contained or to be contained in the taxes for the year when such certificates or revenue bonds are issued and payable out of such taxes. Nor shall this section be construed to prevent the issue of bonds to provide for the supply of water, but the term of the bonds issued to provide for the supply of water shall not exceed twenty years, and a sinking fund shall be created on the issuing of the said bonds for their redemption by raising annually a sum which will produce an amount equal to the sum of the principal and interest of said bonds at their maturity. The amount hereafter to be raised by tax for county or city purposes, in any county containing a city of over one hundred thousand inhabitants, or any such city of this State, in addition to providing for the principal and interest of the existing debt, shall not, in the aggregate, exceed in any one year two per centum of the assessed valuation of the real and personal estate of such county or city, to be ascertained as prescribed in this section in respect to county or city debt.

State Debt and Finances.—Aside from the fund to supply annuities for the Indians, the principal of which is $122,694.87, the only debt of the State is that incurred on account of the canals. The following statement shows its condition for the fiscal year ending September 30:

Aggregate debt Sept. 30, 1883	$8,848,160 00
Aggregate debt Sept. 30, 1884	8,839,160 00
Decrease of aggregate debt during year	$9,000 00
Aggregate sinking fund Sept. 30, 1883	$2,495,558 06
Aggregate sinking fund Sept. 30, 1884	4,062,836 85
Increase of sinking fund during year	$1,567,288 79
Net debt Sept. 30, 1883	$5,852,606 94
Net debt Sept. 30, 1884	4,276,828 15
Decrease of net debt during year	$1,576,288 79

The receipts and disbursements of the treasury on account of the several State funds for the year were as follow:

RECEIPTS.

General fund	$8,836,688
Common-school fund	315,464
College land-scrip fund	19,237
Elmira Female College educational fund	7,758
Literature fund	42,189
Military-record fund	2,830
United States deposit fund	345,047
Free-school fund	3,104,318
Canal fund	3,070,689
Total	$15,744,168

DISBURSEMENTS.

General fund	$8,259,802
Common-school fund	258,726
Free-school fund	3,084,949
Literature fund	45,899
United States deposit fund	360,816
College land-scrip fund	.....
Elmira Female College educational fund	20,078
Military-record fund	1,268
Canal fund	2,933,980
Bounty-debt sinking fund	3,055
Total payments	$14,968,592

The rate of taxation for the year 1884–'85 was 2·575 mills, the total assessed value of property $3,014,591,372, from which the income will be $7,762,572.78, to be devoted as follows:

School purposes	$3,180,393 90
Canals, including canal debt	1,718,317 08
General purposes	2,863,861 80
Total	$7,762,572 78

The receipts of the year from the tax on corporations amounted to $1,603,612.75. The trust funds of the State, on the 30th of September, were as follow:

Common-school fund	$3,852,901 54
Literature fund	271,960 76
United States deposit fund (for educational purposes)	4,014,520 71
College land-scrip fund	473,402 87
Military-record fund	39,121 40
Bounty-debt sinking fund	3,055 80
Mariners' fund	10,000 00

The expenditures of the year for educational purposes from State funds and appropriations amounted to $3,526,636.55, of which $3,099,165.66 was the proceeds of the common-school tax of 1·055 mills. The expenditures for charitable institutions were:

	Support.	Buildings, etc.
Deaf and dumb	$199,687 11	....
Blind	88,102 79	$12,317 16
Insane	61,318 24	59,822 94
Idiots	65,500 00	10,000 00
Juvenile delinquents and House of Refuge	128,388 84	11,856 49
State Reformatory	80,000 00	14,000 00
State Soldiers' and Sailors' Home	80,000 00	10,000 00
Total	$666,186 48	$117,996 59

The number of patients in the Insane Asylums was 3,999, distributed as follows: Utica, 607; Willard, 1,822; Poughkeepsie, 361; Middletown, 282; Buffalo, 347; Binghamton, 580.

State Prisons.—The cost of maintaining the three State Prisons for the year ending Sept. 30 was: Auburn, $116,248; Clinton, $106,349.60, including $6,096.67 damages for breach of contract; Sing Sing, $177,866.59. Cost for construction and repairs: Auburn, $4,875; Clinton, $14,025.50; Sing Sing, $14,000. The entire cost of prison administration, including $8,297.95 for salary and expenses of Superintendent, $7,500 for agent for discharged convicts, and $12,909.24 for transportation of convicts, was $444,240.11. The receipts of the prisons from convict labor were: Auburn, $115,408.09; Clinton, $46,899.74; Sing Sing, $238,179.56; total, $400,487.39. The number of convicts at the close of the fiscal year was: at Auburn, 736; Clinton, 571; Sing Sing, 1,539; total, 2,846. There were in the several penitentiaries of the State 690 State convicts, and in the State Reformatory at Elmira 576. The annual report of the Superintendent of Prisons shows that since 1877 the cost of care and maintenance of these institutions has been reduced from $625,783.44 to $390,501.22, and a deficit of $317,411.06 changed to a surplus of $10,657.97. He credits this to the new system of administration and the adoption of the contract method of employing convicts. During the same period, while the population of the State advanced from 4,704,395 to 5,408,000, that of the prisons declined from 3,481 to 2,876. The number of recommitments had largely diminished. The abolition of the contract system on the expiration of the existing contracts compelled a resort to the employment of prisoners on State account at Clinton until other provision should be made by the Legislature.

Canals.—The expenditures of the year on account of the canals were $2,985,980.16, including $500,810 for interest on the canal debt, $9,000 for redemption of debt, and $1,640,000 investment on account of sinking fund. The payments for maintenance and ordinary repairs were $706,567.83; for collecting statistics, $24,472.87; new work and damages, $65,546.13; miscellaneous, $38,083.83. The tonnage on the canals during the season of navigation, from May 6 to Dec. 1, aggregated 5,009,488, a decrease of 654,560 from the record of the previous year. Canal freights included 1,671,706 tons of forest products, 1,264,237 of agricultural products, 205,006 of manufactured products, 300,450 of merchandise, and 1,568,059 other articles. The average charge per ton per mile was ·27 of a cent, against ·34 in 1883.

Railroads.—The principal event of the year connected with the railroad interests of the State was the opening of the New York, West Shore & Buffalo line, and the placing of its affairs in the hands of a receiver on account of default in payment of interest on its bonds. The first appointment of receivers, having been made in Orange county, was vacated by the courts in New York city, and the same receivers were appointed there under the law requiring the proceedings to be taken in the county in which the principal business of the corporation is transacted. The general railroad statistics of the year are condensed in the following statement:

Total number of tons of freight carried one mile	9,322,518,571
An increase of ·39 per cent.	
Average charges per ton per mile	$0.00·8266
Average expenses per ton per mile	·6278
Average profits per ton per mile	·1988
Total number of passengers carried one mile (exclusive of elevated roads)	1,729,658,620
An increase of ·54 per cent.	
Total earnings	$126,204,164
A decrease of 5·16 per cent.	
Average charge per passenger per mile	2·08
Average expenses per passenger per mile	1·64
Average profit per passenger per mile	·44
Total operating expenses	$86,891,769
Total paid for interest	26,832,808
Amount of dividends paid	17,392,815
Percentage of net earnings to cost of road and equipment, as claimed in their reports	3·38
Total miles of road built in New York State	7,297·89
Total amount of stock and debt Sept. 30	$1,268,220,758
Total cost of road and equipment, as claimed in their annual reports	1,160,789,484

The Railroad Commission, in discussing the question of legislation affecting railroad charges, announced the following general conditions:

> There should be entire publicity of railroad rates, whether the same be tariff or special rates.
>
> Railroads should not, as a general rule, charge more between a terminal and an intermediate point, for a like class and quantity of freight, than is charged between such terminal and a more distant point, even though at such more distant point there be railroad or water competition, unless railroads can affirmatively establish such circumstances governing such competition as justify the higher charge for the shorter distance.
>
> Any form of contract or any kind of discrimination against shippers, which compels citizens to refrain from freely using the canals of the State in preference to railroads, is against a sound public policy, and ought not to be permitted.
>
> There is no form of specific rate-fixing legislation that can be at present recommended. Such legislation is not advisable in this State until it is established that all proper modifications in rates and correction of existing wrongs can not be obtained under existing laws, with the amendments as are hereafter recommended.

Schools.—The total amount expended for common schools was $6,663,119 in cities, and $5,171,792 in towns, a total of $11,834,911. The public expenditure for educational purposes is shown in the following statement:

Wages of common-school teachers	$7,985,722
District libraries	39,107
School apparatus	179,469
Colored schools	84,485
Buildings, sites, furniture, repairs, etc	2,106,216
Other expenses incident to the support of common schools	1,492,729
Support of academies	45,899
Teachers' classes in academies	19,149
Teachers' institutes	18,308
Normal schools	141,718
Elmira Female College	1,555
Indian schools	9,819
Department of Public Instruction	20,360
Regents of the University	9,253
Salaries of school commissioners	111,611
Total	$12,212,851
Corresponding total for 1888	12,217,827
Decrease	$4,975

The value of school-houses and sites is $31,937,951; the whole number of pupils in the public schools for the year, 1,000,057. In normal schools, colleges, academies, and private schools there were 172,128. The number of graduates from the eight normal schools was 800. In reply to an inquiry from a Board of School Trustees, regarding the right of teachers to enforce the attendance of all pupils at religious exercises at the opening of school-sessions, the State Superintendent, in May, declared that it was impracticable to have religious instruction in which all "classes and sects could harmonize," and the only alternative "to preserve the benefits of constitutional guarantees, in letter and spirit, and to secure to all absolute equality of right in matters of religious predilection, must be, however reluctantly the conclusion is arrived at, to exclude religious instruction and exercises from the public schools during school-hours." This he declared to be the policy sanctioned by law and practice in the State.

Banks.—There were, on Oct. 1, 89 banks of discount and deposit, organized under State laws, of which the total resources were $157,446,275. There had been an increase during the year preceding of $389,000 in capital, $177,480 in surplus, and $469,004 in undivided profits, but deposits had fallen off $4,354,629, and loans and discounts $3,979,718. The aggregate resources of trust, loan, mortgage, and guarantee companies, on the 1st of July, were $151,629,464, a decrease of $8,508,300 for the year.

Insurance.—The latest annual report of the Insurance Department covers the calendar year 1888. It shows that the assets of the twelve New York life-insurance companies were $251,973,410; income, $54,952,752; expenditures, $42,412,130; number of policies in force, 341,379; full amount of risks, $977,070,669. Seventeen other companies doing business in the State had $219,832,510 of assets, $37,610,011 income, $29,331,458 expenditures, 364,262 policies in force, and $784,659,346 of risks. There were 125 co-operative societies, with $674,486.23 cash, and $1,780,544.53 other assets, and $1,149,609.05 of liabilities.

Immigration.—The number of immigrants arriving at the port of New York during the calendar year was 385,622, of whom 330,030 were aliens. Of the latter, 141,922 came from Germany, 39,966 from Ireland, 32,086 from England, 16,722 from Sweden, 9,942 from Norway, 14,076 from Italy, 12,432 from Russia, 1,237 from Switzerland, 7,100 from Denmark, 7,093 from Bohemia, 3,029 from the Netherlands, 6,872 from Scotland, 3,731 from Austria, 1,776 from Wales, 3,898 from France, 15,797 from Hungary, 242 from Luxemburg, 1,971 from Belgium, 962 from Spain, 72 from Turkey, and 3,104 from other countries. The avowed destination of 111,472 of these was the State of New York. The total receipts of the Emigration Commission from the U. S. Treasury, rentals, boarding-house permits, and other sources, were $187,985.28; expenditures, $181,418.48. The Information Bureau at Castle Garden directed 28,018 immigrants to their friends, and forwarded 486 children to their destination. The licensed boarding-house keepers lodged 41,483 immigrants. The number of persons cared for at Ward's Island was 3,856, of whom 3,234 were received during the year; 1,144 immigrants unable to take care of themselves were sent back to the countries from which they came, including 63 insane, 4 blind, 5 deaf and dumb, 21 crippled, 73 aged, 876 sick and destitute, and 103 others.

Miscellaneous Statistics.—Payments on account of construction and furnishing of the new Capitol during the fiscal year amounted to $1,305,825.30, making the total cost to Sept. 30, $16,443,996.96. The commission appointed to select lands for a State Park at Niagara Falls completed that duty during the year, and obtained an appraisal of the property taken. The value set upon it by the Board of Appraisal was $1,400,000. The Legislature of 1885 was asked to appropriate the money to pay for the lands and complete the project of establishing the park, to be free to public enjoyment. The operations of the State Survey for the year were confined chiefly to mathematical computations upon the results of field-work previously obtained, the cost for the fiscal year being $13,431.15, making the entire expenditure since 1877, $115,422.37. The work has been chiefly confined to triangulation, and for the completion of that $22,000 a year for five years is asked for by the commissioners. They also recommend the beginning of a close topographical survey and the construction of county maps, estimating the expense at about $40,000 a year for a period of thirteen years.

The New Year.—On the 6th of January, 1885, after the meeting of the Legislature, Governor Cleveland submitted to that body his resignation of the office of Governor, which thereupon devolved upon the Lieutenant-Governor, David B. Hill. Even before the meeting of the Legislature, an active canvass began for the election of a United States Senator to succeed Elbridge G. Lapham, whose term was to expire March 4, 1885, or rather for the Republican nomination for that office. The result was the formal presentation of the name of William M. Evarts by the Republican caucus, and his election to the Senate.

NEW YORK (CITY). The Finances.—The assessed value of real estate in the city for 1884 was $1,119,761,597, against $1,079,130,669 in 1883, an increase of $40,630,928. The valuation of personal property, as returned by the assessors, was $218,536,746, an increase over the previous year of $21,045,212, making the total assessment $1,338,298,343, against $1,276,677,164 in 1883. The rate of taxation was 2·29 per cent. The total appropriations allowed by the Board of Estimate and Apportionment for the expenses of the year 1885 were $33,881,905, the estimates submitted to it from the various departments having been $34,888,217, and the appropriations for 1884, $34,046,165. The practice of the Board of Estimate and Apportionment, of transferring unexpended balances in one department or bureau of the city government to another, was declared illegal by the Supreme Court in September, in a suit brought to restrain the board from making such transfers. The controversy over the unpaid taxes of the elevated railroad companies was decided by Judge Pratt, in October, in a suit brought for a review of the assessments. It was held that, in assessing the structures as real estate, their cost must be ascertained and a proper allowance made for deterioration, and they must then be assessed at no higher rate, compared with actual value, than other real estate. To ascertain the amount of personal property, it was held that the actual value of the capital must be fixed and the assessment on real estate deducted therefrom. It was decided, however, that the stock of the Manhattan Company, which represented no actual investment of capital, could not be assessed, though it had a market value. The amount of unpaid taxes, extending over a period of four years, was $1,868,767.48, on the basis of the original assessment. It was reduced by Judge Pratt's decision to $991,099.91, and on this basis a settlement was made, the taxes for 1884 being included, and raising the amount to $1,285,538.51. The gross debt of the city on the 1st of January, 1885, was $126,871,138.58, and the amount in the sinking fund was $34,823,735.48, making the net debt $92,047,403.10. The question arose, after the adoption of the constitutional amendment restricting the amount of debt to be incurred by cities of 100,000 inhabitants and more to 10 per cent. of the assessed value of real estate, whether the sinking fund could be deducted in computing the amount of outstanding indebtedness. It was the opinion of the Corporation Counsel that it could not be deducted, inasmuch as the Sinking Fund Commissioners were trustees for creditors holding securities for specified classes of bonds not yet due, and that no new bonds could be issued until the gross debt was brought within the constitutional limit.

Charges of Malfeasance.—After the investigation into the affairs of the city and county of New York by a committee of the Assembly, indictments were found against the sheriff, Alexander V. Davidson, for grand larceny in the second degree, in obtaining payment for services in excess of that authorized by law; an indictment was also found against the warden of Ludlow Street Jail, for perjury, in making oath that prisoners had declared that they were unable to support themselves, when such was not the case; the deputy-warden was indicted for forgery in the second degree, in signing receipts for payment of wages to employés of the jail; and a clerk in the sheriff's office was indicted for receiving illegal fees, and another for obtaining a signature by false pretenses. The sheriff was brought to trial on the 17th of April, but was acquitted for insufficiency of evidence, and the other cases were abandoned. Application had previously been made to the Governor of the State for the removal of the sheriff on specific charges of malfeasance. The case had not been finally disposed of at the end of the year. A special presentment was made by the grand jury, in May, against the Department of Public Works, for the extravagant and wasteful methods that prevailed in its administration, and the evasion of legal requirements in the making of contracts, but no indictments were found and no official action taken for the remedy of the alleged abuses. In June, the special grand jury of the Court of Oyer and Terminer, which had been formed for the purpose of inquiring into the administration of the affairs of the city, and which had made the abovementioned presentment, submitted a more comprehensive document, criticising the loose methods prevailing in the Department of Taxes and Assessments and in the Comptroller's office, and suggesting measures of reform.

Politics.—The local political contest was in a measure separate from general politics. After the National Convention, the Tammany Democracy, while avowing its support of the Presidential ticket, refused to unite with other organizations in any political demonstration, and nominated a separate ticket for city and county offices, its candidate for mayor being Hugh J. Grant. A citizens' committee agreed upon ex-Mayor William R. Grace as a candidate for that office, and secured his acceptance by the County Democracy and Irving Hall factions of the Democratic party, and a complete ticket was arranged for the support of those opposed both to Tammany Hall and to the regular Republican organization, which latter made nominations of its own, Mr. Frederick S. Gibbs being the candidate for mayor. The enlarged powers given to the chief executive of the city by the legislation of the year (see New York State) made the local contest one of unusual importance, and the eagerness of each faction to elect the mayor led to a complication of issues. The total vote for mayor, exclusive of 384 defective and 451 blank ballots, was 226,536. Grace received 96,288; Grant, 85,361; Gibbs, 44,386; and Crittenden (Prohibitionist), 501. The other candidates, on the Citizens' and County Democracy ticket, were elected by a less emphatic vote. These were E. V. Loew, Comptroller; A. L. Sanger, President of the Board of Aldermen; Randolph B. Martine, District Attorney. Three Judges of the Court of Common Pleas were elected, and four sets of candidates were nominated, including those of the Prohibitionists, who received less than 600 votes. Those elected were, J. F. Daly, R. L. Larremore, and Henry Wilder Allen, all of whom were already on the bench. The first two were Tammany candidates, and the last a County Democracy candidate. Daly's vote was 78,349; Larremore's, 77,279; and Allen's, 74,242; the third Tammany candidate receiving 70,556, and the Republican candidate having the highest vote receiving 72,808. The city vote for Presidential Electors was: Cleveland, 133,222; Blaine, 90,095; Butler, 3,499; St. John, 1,031. There were 822 defective and 1,477 blank ballots. For Judges of the Court of Appeals the vote was: Andrews, Republican, 218,724; Rapallo, Democrat, 218,903; these having been nominated by both parties; Rice and Cowen, People's party, 1,455 and 1,561 respectively; and Farrington and Willard, Prohibition, 598 and 592. The vote on the constitutional amendment, restricting the power of cities to incur indebtedness, was 109,761 for, and 1,778 against it. The number of voters registered was 240,948, against 182,351 in 1883, and 217,029 in 1880.

Considerable excitement was caused after the election by the course of Mayor Franklin Edson in making appointments to office before the expiration of his term. There had previously been a dispute as to the time of the expiration of the terms of two members of the Board of Police Commissioners. The law of 1873 had fixed the time for the expiration of the terms of the commissioners then in office, and had provided that thereafter the term should be six years. The "consolidated act" of 1882 had declared that a person appointed after the beginning of a term should only hold for the rest of that term, and until a successor was appointed and qualified. Mr. Joel B. Erhardt had been appointed for the remnant of a term expiring May 1, 1877, but had, in fact, held over until May 20, 1879, when Stephen B. French was appointed. Mr. DeWitt C. Wheeler had in like manner been appointed for the remnant of a term expiring May 1, 1878, but had held over until May 25, 1880, when Joel W. Mason was appointed. It was contended, on the one hand, that Messrs. French and Mason were entitled to full terms, beginning with the date of their appointment, and on the other that they could hold only for unexpired terms beginning with May 1, 1877 and 1878, respectively. The former view had been held by the Counsel to the Corporation, and acted upon by the mayor, until, on the 24th of November, the latter announced his conclusion that the terms had expired in May, 1883, and May, 1884, and that the commissioners were holding over, and submitted new appointments to the Board of Aldermen, which were promptly confirmed. Mr. French was reappointed, but, in place of Mr. Mason, Mr. John McClave was named. Mr. Mason disputed the right of Mr. McClave to the office to which he had been appointed, and applied to the Attorney-General of the State for leave to bring a suit for a writ of *quo warranto* to test the question. This was denied by Attorney-General Dennis O'Brien, who, after a full discussion of the provisions of the law, which he declared to be "indefinite, uncertain, and almost chaotic," concluded:

> It is my opinion, therefore, that the Legislature meant what it said when it declared that the term of office should be six years; that when a commissioner holds over, after the expiration of his term, he encroaches upon another term of six years, and that when his successor is appointed and confirmed he must be appointed for the balance of that term en-

> croached upon and for a no longer period. Believing, as I do, that this is a fair and reasonable construction of the statute, and that such would be the interpretation which, in the end, the courts would be likely to put upon it, I can not very well affirm that Mr. McClave has usurped, intruded into, or unlawfully holds the office of Police Commissioner; nor can it be said, under these circumstances, with any great degree of confidence, that a litigation in behalf of the State to oust him from the office would be successful. These general conclusions are reached without any reference to the consolidation act of 1882. Certainly, there is nothing in that act to assist the contention of Mr. Mason. But, on the other hand, if that statute applies at all to the present case, inferences might very well be drawn from it which operate against his theory of construction. It is difficult, I think, to escape the conclusion that the litigation proposed by this application must be unsuccessful in the end, and consequently it would be unwise and detrimental to the best interests of the Police Department of the city of New York. The application is therefore denied.

This decision was announced on the 19th of December, but in January, 1885, it was reversed on a second application, accompanied by an assurance from the new mayor that there were several offices affected by the question in dispute upon which he should feel obliged to act, and that it was important to have the question judicially settled.

The terms of office of the Commissioner of Public Works and of the Corporation Counsel expired on the 10th of December, and the mayor was required by law to submit the appointment of their successors to the Board of Aldermen within ten days thereafter. As the mayor's term expired with the year, as did also the power of the Board of Aldermen to confirm appointments, there was a strong desire in some quarters to defeat the appointments, which was aided by the political division of the aldermen almost equally between the two factions of the Democracy and the Republicans. The appointments first made by the mayor in fact failed of confirmation. On the 22d of December, Judge George P. Andrews, of the Supreme Court, granted a temporary injunction in an old suit of what was known as the "Wolf Board of Aldermen," in which the validity of the election of the existing board was contested, restraining the board for the time being from taking any action whatever. The order to show cause why the injunction should not be made permanent was made returnable before Judge Lawrence, of the same court, who, on the 26th of December, dismissed the writ and dissolved the injunction. An application was then made to Judge Miles Beach, of the Court of Common Pleas, sitting at the time by assignment on the bench of the Superior Court, for an injunction, in an action begun by several citizens, to restrain the mayor and aldermen "from appointing, nominating, or confirming the nomination of any person to the office of Commissioner of Public Works, or of Corporation Counsel," on the ground that the defendants were about to join in the perpetration of an illegal act by filling the offices named "in pursuance and as a part of a corrupt scheme, whereby such offices are to be filled in consideration of payments and promises of payments of money or of appointments." A temporary injunction was granted by Judge Beach on the 30th of December. An application was immediately made to Judge Charles H. Truax, of the Superior Court, to dissolve the injunction, and he heard argument thereon, but rendered no decision until the 26th of January, 1885, when he decided that Judge Beach had jurisdiction to act in the case, but had granted the injunction on insufficient ground. In the mean time Mayor Edson had, on the 31st of December, notwithstanding the injunction, nominated to the Board of Aldermen Rollin M. Squire for Commissioner of Public Works and William Dorsheimer for Corporation Counsel. The former was confirmed, and the latter rejected. The mayor then declared that his term of office expired at midnight of that day, though that of his successor did not begin until noon of January 1, and turned over the custody of his rooms in the City Hall to a captain of police at that hour. Thereupon the President of the Board of Aldermen, whose term did not expire until the first Monday in January, claimed to succeed to a vacancy in the mayor's office, with the power to make appointments without confirmation under the new law, which went into effect January 1. Between midnight and noon of Jan. 1, he named E. T. Wood for Counsel to the Corporation in place of E. H. Lacombe, who was holding over and refused to give up his office. Mr. Wood subsequently applied to the Attorney-General for leave to bring suit for a writ of *quo warranto* to test the title of Mr. Lacombe to the office. This was granted, but when the case came before the general term of the Supreme Court it was dismissed, the Court unanimously deciding that Mayor Edson's term did not expire at midnight, December 31; that if it had expired then he would have held over until his successor had qualified; that there was no vacancy for the President of the Board of Aldermen to fill, and if there had been he would have had no power to make appointments without confirmation by the Board of Aldermen, or otherwise. Proceedings were taken against Mr. Edson for contempt of court in disregarding the injunction of Judge Beach, and a decision was rendered by Judge Freedman in February, 1885, adjudging him in contempt, and passing sentence of imprisonment in the county jail for fifteen days and a fine of $250. A stay of proceedings was obtained, and an appeal was brought.

The New Aqueduct.—The plans for the new Croton Aqueduct were adopted by the Commissioners early in the year, and proceedings were begun for acquiring the necessary land-rights. Bids were invited for contracts for the construction of that portion of the aqueduct above the Harlem river in ten sections. The awards were made in December, the entire work being taken by two contractors, O'Brien & Clark, of New York, and Brown, Howard

& Co., of Chicago, at an aggregate price of $11,890,342. The excavation is required to be sixteen feet in diameter, and the finished conduit fourteen feet, and for the greater part of the distance it must be a rock-tunnel, in some places 250 feet underground. The entire length covered by the contracts is 148,692 feet. Work was to begin within ten days after the approval of the contractors' bonds, and be completed within thirty-three months. The bonds required were in amount equal to 10 per cent. of the cost on each section as estimated by the engineer of the commission, and amounted in the aggregate to $1,428,000. The contracts were executed before the end of the year, but no awards had been made for the portion of the aqueduct below the Harlem river. The cost of the entire work, exclusive of the proposed Quaker Bridge dam, was estimated by the Commissioner of Public Works at $15,664,308.

Surface Railroads.—Before the passage of the General Surface Railroad Bill (see NEW YORK STATE), a commission appointed under the law of 1875, known as the Rapid Transit Act, had decided in favor of a number of lines, partly on the surface and partly elevated, to be operated by the cable system. They included twenty-nine different routes, mostly cross-town, and seventy miles of track. The right to construct the roads was given to the New York Cable Railway Company, but before the proceedings were completed the Surface Railroad Act became a law, one section of which prohibited the construction of surface lines under authority of the Rapid Transit Act. This threw the validity of the action of the commissioners and the company into dispute, and the matter was not settled at the end of the year, when commissioners had been appointed by the Supreme Court to decide whether the proposed rapid-transit lines on the cable plan should be constructed. Another controversy arose under the Surface Railroad Act in consequence of the efforts of rival horse-railroad companies to secure a franchise on Broadway, below Union Square, which had thus far been kept free from railroad-tracks. The property-owners refused their consent, and a commission was appointed to act on the question of the expediency of permitting the construction of a railroad in that thoroughfare. In the mean time application was made to the Board of Aldermen for its consent. After an injunction had been issued to prevent this, and had been dissolved on the ground that discretion was clearly lodged in the "local authorities," consisting of the aldermen subject to the veto power of the mayor, the consent of the board was granted to one of the applying companies. This was disapproved by the mayor, and again voted, notwithstanding his objections; but as the latter action took place at a meeting of which notice was not given to all the members, it was held invalid by the courts. Later, in November, a new application, accompanied by terms and conditions more favorable to the city, was made by the company and accepted by the aldermen, who again gave their formal consent. Again they encountered the mayor's veto, and the matter was still in doubt and dispute at the end of the year. Mr. Grace, the new mayor, in referring to the matter in his first message, said:

> No franchise for any such purpose should be awarded except upon such conditions as will secure to the city the largest possible revenue. The proper means to attain this end I conceive to be the undeviating adherence to the plan of putting all such franchises up at public bidding at a sufficient upset price, and the insistence, as a condition of awarding the franchise, that there shall be prompt annual payments into the city treasury of a fair percentage upon the gross receipts of the person or corporation enjoying the franchise. I shall give my approval to no grant of any such franchise which is not awarded under some such conditions.

NEW ZEALAND. (See page 60.)

NICARAGUA, a republic in Central America. Area, 51,600 square miles; population in 1883, 275,815. The President is Dr. Adan Cárdenas, elected in 1883. His Cabinet is as follows: Finance, War, and Navy, Col. J. Elizondo; Justice and Public Worship, Dr. F. Delgadillo; Foreign Affairs, Señor F. Castillon; Interior, Señor J. Chamorro.

The northern coast of Nicaragua is the site of the Mosquito Kingdom, over which, although it is an integral portion of the republic, the Government exercises but a nominal control. By treaty with the British Cabinet, Nicaragua acknowledged the Mosquito King as sovereign of this strip of land, and agreed to pay him a subsidy of $7,000 per annum. When the King died, English missionaries elected an illegitimate son of the King to succeed him. Since that epoch the Nicaraguan Government has ceased to pay the stipulated subsidy, although it has till recently figured in each appropriation. Nicaragua took formal possession of the Mosquito coast on Dec. 31, 1883.

National Indebtedness.—In 1877 the Government of Nicaragua passed a law amalgamating its different liabilities, chiefly created during and subsequent to the filibuster war of 1855–'57, and represented by bonds of different descriptions, into a consolidated bonded debt, and provision was made for their payment by receiving the bonds at the custom-houses in part payment of import duties—50 per cent. to be paid in cash, and 50 per cent. in bonds. In 1877 this consolidated debt amounted to $1,469,147; and on June 18, 1884, there had been canceled $1,318,151, still leaving in circulation, $150,996; adding thereto seven years' interest at 5 per cent. per annum, $49,451, there remained unredeemed, $200,447. But on Nov. 8, 1884, there had been canceled $111,947, reducing the indebtedness to $88,500.

Finances.—The income in 1883 was $1,969,569, and the outlay $1,712,994. There were on hand in the national treasury on Jan. 1, 1884, in cash, $256,575, being $74,218 in excess of the available balance the preceding January.

All sources of revenue had increased in 1883, except the amount collected from import duties and the tobacco-tax. The former fell off because the low price of coffee, etc., caused decreased importation, and the latter on account of a short tobacco-crop. On the other hand, the liquor-tax yielded $445,286 in 1883, against $371,068 in 1882—an increase under this head of $74,218. The tobacco-tax usually nets the Government $300,000 per annum, yet the Minister of Finance recommends that it be abolished, for, in his belief, the suppression of the monopoly would give a great impulse to tobacco-culture, and thus greatly redound to the prosperity of agriculture in the country.

Public Works.—While devoting, in 1881, $247,729 to canceling its debt, the republic spent in the same year $297,910 on public works—such as roads, railways, etc. In 1882 the respective amounts disbursed for these two items were $329,210 and $286,008, and in 1883 $267,825 and 412,786.

Railroads.—The future railroad system of Nicaragua, to be called the National Railroad, will extend from Corinto Harbor to Pueblo Nuevo (La Paz), thence a branch line to Momotombo, to Managua, the capital, and Granada, making a total distance of 125 miles, and forming a right angle through the most fertile part of the country. That section is finished which connects Corinto, on the Pacific, with Momotombo on Lake Managua—a beautiful sheet of water of about 560 square miles. On reaching Momotombo, passengers and goods are forwarded to Managua by steamers, which make connections every day both ways. The railroad line is 58 miles long, and was completed Jan. 1, 1884. The first section of it, to Leon, has been in operation for two years. The road is well equipped and well maintained; best Bessemer rails, forty pounds per yard in weight, three feet six inches gauge, on mahogany, lignum-vitæ, coajoche, guachipilin, laurel-negro, roble, or cortez-negro sleepers. Sand ballast has been used throughout.

The traffic consists of freight mostly, which is dye-woods, coffee, India-rubber, and hides. As much as 400 tons of dye-woods are daily transported to Corinto for shipment. The net proceeds of the road in 1883 were 4½ per cent. of the invested capital; cost of building and equipment, operating and maintenance expenses, 56 per cent. of gross earnings.

The line that will connect Managua with Granada is under construction and the grading is completed. Its length is thirty-two miles, ten miles of which are laid.

Commerce.—The import into Nicaragua varies little from $3,500,000 annually, nor the export from $4,000,000.

WOOD SHIPMENTS FROM CORINTO, 1883.

34,084 tons of fustic, at $10 a ton	$340,840
406 tons of Brazil-wood, at $24 a ton	9,744
730,600 feet of cedar, at $30 per M	23,418
31,000 feet of mahogany, at $30 per M	930
Total	$374,432

First six months of 1884:	
11,512 tons of fustic, at $11 a ton	$126,632
50 tons of Brazil-wood, at $24 a ton	1,200
403,400 feet of cedar, at $30 per M	12,102
Total	$139,934

Other products exported are India-rubber, about 14,000 quintals annually (one quintal = 101½ pounds American); coffee, 7,000,000 lbs.; indigo, skins, and gold and silver bullion.

The tonnage entering the ports of the republic amounted to 260,000 tons; out of 213 arrivals, 156 were steamers.

The Interoceanic Canal.—The "Official Gazette" of Nicaragua, speaking of the Government decree abolishing the contract with the Provisional Company of New York, known as the "Menocal contract," for the construction of the Nicaragua Canal, says that the company bound itself within two years from the date of the acceptance of the contract (April 24, 1880) to conclude definite plans for the work, and to form the company destined to accomplish it, and that non-compliance with this obligation implied the recision of the contract. As the plans had not been drawn up, nor the construction company formed by May 25, 1882, the contract should have been null and void on that date; but the company applied for an extension of time, and by the law of Feb. 22, 1882, a further term of two years was granted. The extension of two years elapsed on September 30 last; consequently the concession to the New York company has become null and void, and the republic has acquired the right to negotiate with other companies. This the Government has already officially declared.

On Dec. 1, 1884, the President of the United States informed Congress, in his message, of the conclusion of a treaty with the Nicaraguan Government.

NORTH CAROLINA. State Government.—The following were the State officers during the year: Governor, Thomas J. Jarvis, Democrat; Secretary of State, William L. Saunders; Treasurer, John M. Worth; Auditor, William P. Roberts; Attorney-General, Thomas S. Kenan; Superintendent of Public Instruction, John C. Scarborough. Judiciary, Supreme Court: Chief-Justice, William N. H. Smith; Associate Justices, Thomas S. Ashe and Augustus S. Merrimon.

Finances.—The entire expenditures for the fiscal year ending Nov. 30, 1884, were $785,641.78; but this amount embraces several items that are not chargeable to the expenses of the State government proper, because the funds from which they are defrayed are not raised by general taxation. These items aggregate $214,694.11. Deducting these, we have, for the usual and ordinary expenses of the State government proper, $570,947.67.

On the financial situation for the coming two years, the Governor, in his message to the Legislature of 1885, says:

The Treasurer and the Auditor substantially agree in their estimates of the expenses of the State government for the fiscal years ending Nov. 30, 1885, and Nov. 30, 1886. Their estimate is about $590,000 a year, or $1,180,000 for the two years. The Treasurer had cash on hand, on Nov. 30, 1884, $926,086.98. The receipts from sources other than taxes on property amounted in the aggregate the last year to $176,933.95. There is some increase in the receipts from this source, because it is a tax upon the business of the State, and that is steadily increasing. So it is safe to calculate that receipts from this source will not be less than $175,000 a year, or $350,000 for the two years. A tax of ten cents on the hundred dollars' worth of property will raise $200,000. These three amounts added together make the total receipts for the two years $1,476,086.98, which will be ample to meet all the expenses of the State government for the two fiscal years ending Nov. 30, 1885, and Nov. 30, 1886, and leave quite a large surplus.

The new consolidated 4 per cent. debt is $2,803,796.25; old bonds still outstanding, $2,999,600. The act under which these bonds could be funded expired on Jan. 1, 1885. The old bonds taken up and burned amounted to $9,627,445, for which there has been issued in consolidated bonds, bearing interest at 4 per cent., $2,803,796.25. There has been exchanged of the construction bonds, issued for the construction of the North Carolina Railroad, $2,030,000, leaving still outstanding, $765,000.

The Courts.—The Governor says: "The crowded condition of our dockets, with aged suits and the long delays in obtaining a trial, are so generally known, and in some counties have become such intolerable evils, that the necessity for some action on your part is imperative. An increase in the number of judges of the State is so imperatively demanded, that I do not think it can be longer delayed with a proper regard for the best interests of the State. The number of Superior Court judges was reduced ten years years ago from twelve to nine. During that ten years there has been a wonderful increase in the population and business interests of the State."

Department of Agriculture.—Since its last report, this department has made magnificent displays of the State's resources at the Boston Exposition and at the State Exposition, and is now making one at New Orleans. Thousands of settlers and hundreds of thousands of dollars have already been attracted to the State by them. In addition to these exhibitions, the board has conducted two important surveys—one in the east for phosphate rock, and the other in the center of the State for coal; and both have been successful.

Public Institutions.—There are three Insane Asylums, a Penitentiary, and an Institution for the Deaf and Dumb and the Blind. The Penitentiary has 1,000 convicts, and an expenditure of nearly $200,000 a year. The convicts are employed mainly in railroad-construction, swamp-drainage, and other public works. The Insane Asylums are insufficient to meet the demands upon them, and even with the completion of the Western Asylum, the accommodations will still be insufficient.

The management of the Institution for the Deaf and Dumb and the Blind has been economical, and its work beneficial for the pupils.

Education.—The summary of school statistics for the year 1884 shows the total receipts to be $765,032.16; and the disbursements $535,205.08; balance on hand Dec. 1, 1884, $229,827.18.

The number of children in the State between the ages of six and twenty-one is:

White: Males		163,081
Females		151,212
Total		314,293
Colored: Males	99,710	
Females	90,278	
Total		189,988
Grand total, as reported by 92 counties		504,281

The number of children attending public schools at any time from Nov. 30, 1883, to Dec. 1, 1884, was:

White: Males		91,044
Females		76,015
Average reported by 92 counties		104,291
Colored: Males	54,606	
Females	56,623	
Average as reported by 92 counties		65,403
Grand total enrolled in public schools		278,298
Total average attendance		169,694

The number of teachers that were attending normal schools was:

White: Males		532
Females		390
Model primary		80
Total whites		1,002
Colored: Males	276	
Females	296	
Total colored		572
Grand total, white and colored		1,574

AVERAGE SALARY OF TEACHERS, 1884.

White (as reported by 90 counties)	$24 16
Colored (as reported by 87 counties)	22 06

There are colored normal schools at Salisbury, Franklinton, Newbern, Plymouth, and Fayetteville, and white normal schools at Franklin, Newton, Wilson, Elizabeth City, and in connection with the State University.

The Colored People.—The Governor says: "In 1879 the colored people of this State organized a State Industrial Association for the encouragement of thrift and industry among the colored people, especially in agricultural and mechanical pursuits. This Association has held a State fair each fall since its organization. These fairs have been very creditable to the Association, have been a means of improvement among the colored people, and are therefore beneficial to the State. I cheerfully bear testimony to the fact that the colored people of this State, with rare exceptions, have been orderly, law-abiding citizens during my term of office. I have been received by them with the greatest deference and respect, and have had the cordial support of the better element of them in the administration of the law."

Assessment and Taxation.—In the Auditor's report, the table showing the aggregate gross amount of State and county taxes from the various subjects of taxation is one of the most interesting. Some of its items are as follow: From land, $249,571.26; town lots, $67,225.95; horses, $19,241.54; mules, $18,938.69; cattle, $11,823.24; farming utensils, etc., $29,527.46; money on hand or on deposit, $11,840.37; solvent credits, $41,172.80; other personal property, $39,780.20; dealers in liquors, $24,327.80; merchants and other dealers, $34,280.20; deeds in trust and mortgage deeds, $10,875.20. The gross amount of State taxes is $583,308.51.

The taxes levied for school purposes are as follow: On liquor licenses, $39,882.47; on 184,732 white polls, $153,327.82; on 62,142 colored polls, $69,780.26. On the taxable property in the State (including bank stock), $285,585.33. Total school-tax, $548,586.87. The county taxes aggregate $984,441.89.

The number of acres of land is shown to be 28,223,640, valued at $101,106,387; value of town lots, $23,028,990; value of real estate property, $124,135,377; number of horses 161,728, value $10,559,035; number of mules 91,230, value $5,127,782; number of cattle 825,325, value $5,209,828; number of hogs 1,892,820, value $2,129,380; number of sheep 626,340, value $637,879; value of farming utensils, etc., $13,372,880; money on hand or on deposit, $5,199,728; solvent credits, $16,927,871; stock in incorporated companies, $2,086,344; other personal property, $14,006,827; railroad franchises, $1,972,847; aggregate value of personal property, $77,087,346; aggregate value of all property, $201,222,723.

Political.—The Republican State Convention met in Raleigh on May 1, chose delegates to the National Convention of the party, and nominated candidates for Presidential Electors and State officers. The platform complimented President Arthur; favored the Blair educational bill; declared that a well-regulated tariff system, discriminating in favor of American industries, should be maintained, and all internal taxes abolished; and favored the repeal of the system of county government existing.

Congressman Tyre York, Liberal, was nominated for Governor. The other nominations, divided between Liberals and Republicans, were: Lieutenant-Governor, William T. Faircloth; Secretary, William G. Caudler; Treasurer, George W. Stanton; Auditor, Francis W. Lawson; Attorney-General, Charles A. Cook; Superintendent of Public Instruction, F. D. Winston; Supreme Court Judge, D. L. Russell.

The Democratic State Convention met in Raleigh on June 25, and took similar action. The platform calls for the abolition of "the whole internal revenue system," and the reduction of the surplus in the national treasury; declares that "the duties on foreign importations should be levied for the production of public revenue, and the discriminations in its adjustment should be such as would place the highest rates on luxuries and the lowest on the necessaries of life," and continues as follows:

> *And whereas*, There is now more than a hundred millions of dollars in the treasury of the United States, wrung from the pockets of the people by unjust taxation on the part of the Republican party; therefore,
>
> *Resolved*, That we will accept such distribution of said surplus revenues of the Government for educational purposes as may be made by the Congress of the United States; *provided always*, that the same shall be disbursed by State agents, and not accompanied by objectionable features and embarrassing conditions.
>
> *Resolved*, That it is due to the white people of our eastern counties, who have so cheerfully borne their share of our common burdens, that the present, or some other equally effective system of county government, shall be maintained.

The following is the ticket: For Governor, Alfred Moore Scales; Lieutenant-Governor, Charles Manly Stedman; Secretary of State, William L. Saunders; Auditor, William P. Roberts; Treasurer, Donald W. Bain; Superintendent of Public Instruction, S. M. Finger; Attorney-General, T. F. Davidson; Associate Justice Supreme Court, A. S. Merrimon.

At the election, on November 4, the Democratic ticket was successful. The vote for Governor is reported as follows: Democratic, 143,249; Republican, 123,010. The following was the vote for Presidential Electors: Republican, 125,068; Democratic, 142,952; Prohibition, 454. One Republican (Second District) and 8 Democratic Congressmen were elected. The Legislature of 1885 consists of 43 Democrats and 7 Republicans in the Senate, and 97 Democrats and 23 Republicans in the House.

NOVA SCOTIA. The general depression affecting other portions of the continent in 1884 was felt severely in Nova Scotia. The coal-mines, one of the chief industries, were not required to be worked to the utmost capacity, the steel and glass manufactories of the province were closed for a time, ship-building languished, and only the farmers and fishermen were enabled to repeat the success of former years. The people of the province grew discontented under the high tariff, which benefited them more in theory than in practice; they also became excited over the Spanish-American treaty; and these, with the general depression in trade, low prices for farm-produce, etc., caused a demand from the Halifax Board of Trade for the removal of the protective tariff, or the alternative, annexation to the United States. Nothing noteworthy in legislation occurred during the year. The population, never very great, has been somewhat diminished by emigration, some to the United States, and some to Manitoba and the new Territories of Canada. Immigration has been very backward. The proposal to have an outlet at Boston for the Canadian Pacific Railway has aroused indignation in Nova Scotia. The hopes of many in the province were aroused, during the 1884 session of the Federal Parliament, by the promise of a railway from Montreal, in a straight line, through Quebec, Maine, and New Brunswick, to Nova Scotia, or to Cape Breton. This, they supposed, would guarantee them a winter port in addition to Halifax, or would reinvigorate Halifax. The road is under construction, but may not be completed for several years. (For the latest statistics regarding Nova Scotia, see the article in the "Annual Cyclopædia" for 1883.)

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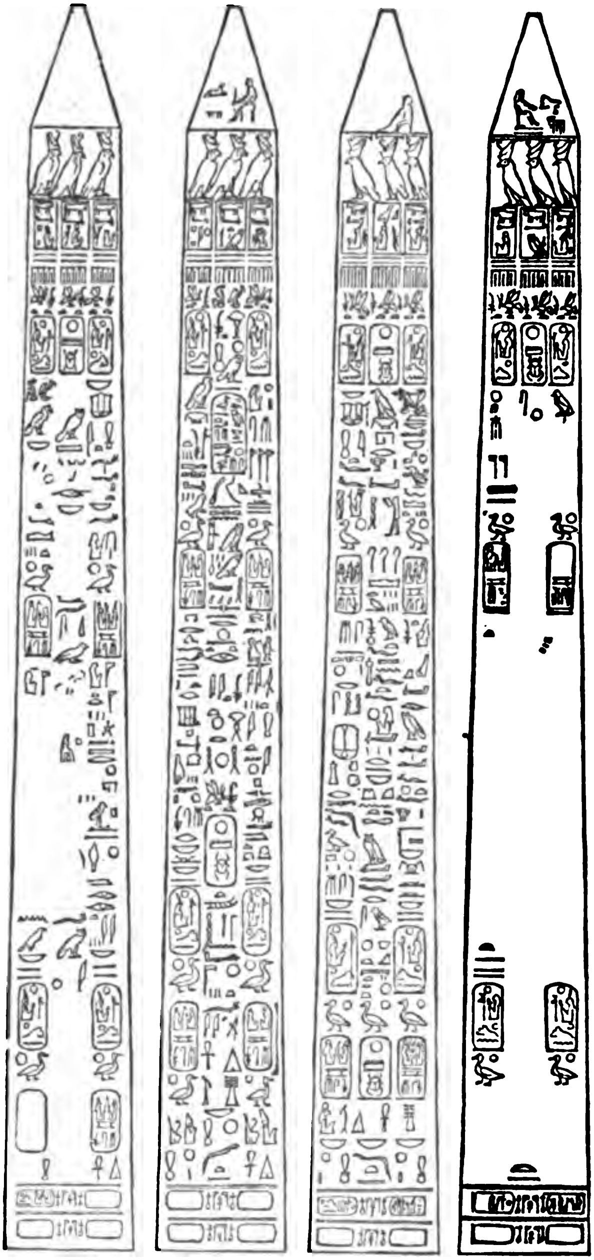
OBELISK. Brugsch Bey tells us, in his "History of Egypt," page 68, that obelisks date from the fourth and fifth dynasties (3700–3300 B. C.) to Domitian, A. D. 182. Pliny says: "Monarchs entered into a kind of rivalry in forming elongated blocks of this stone, known as obelisks, and consecrated them to the divinity of the Sun." How the American metropolis acquired the venerable Egyptian monument that graces Central Park, forms a curious and interesting chapter. At the opening of the Suez Canal in 1869, Khedive Ismail intimated to Mr. W. H. Hurlburt, editor of the New York "World," that America might have one of the Egyptian obelisks. Mr. Hurlburt repeated it to Mr. Louis Sterne, who told him that perhaps his friend John Dixon could obtain for America the monolith standing at Alexandria. Mr. Dixon said he would try, and that he would transfer the obelisk to America for £15,000. Mr. Hurlburt approached Mr. W. H. Vanderbilt, who promised the sum of £15,000 without hesitation. Mr. Hurlburt telegraphed Mr. Vanderbilt's promise to Mr. Dixon, who replied that he expected the United States Government to obtain the grant from the Khedive. On Oct. 19, 1877, Mr. Evarts, Secretary of State, wrote to Consul-General Farman, to open negotiations with the Egyptian Government, and Mr. Farman obtained the obelisk for New York city, May 18, 1879. This result was transmitted to Mr. Hurlburt, who informed Mr. Dixon thereof, asking him whether he was ready to transport the obelisk to New York for £15,000, whereupon Mr. Dixon raised his price to £20,000. Mr. Hurlburt then advertised for bids. Among those submitted appeared that of Commander Henry H. Gorringe, United States Navy, which was accepted Aug. 6, 1879, the agreement being the removal, transfer, and erection of the Alexandria obelisk in New York city for the sum of $75,000, to be paid by Mr. Vanderbilt. Commander Gorringe had to surpass the contrivances used by Rome, France, and England, whose obelisks only traversed inland seas and coasts.

After consulting the plans and methods hitherto used for moving obelisks, Commander Gorringe found them wanting for his purpose, because "the vessel in which the New York obelisk was to be transported must be large enough to take care of herself under all conditions of weather, and must have her own motive power." Among ancient and modern plans of moving obelisks, he found only the French method of lowering them available. Count Carburi's manner of moving the pedestal (600 tons) of the statue of Peter the Great from Karelia to St. Petersburg is useful for transporting heavy masses by land. It consists of cannon-balls rolling in metal grooves. Commander Gorringe engaged an iron-worker and a carpenter, ordered some machinery to be made here, and sailed for Europe Aug. 4, 1879, with Lieut. Schroeder and the carpenter. As England had delayed seventy-eight years to remove the obelisk that had been granted her, it was expected that the great American Republic would procrastinate at least a century; but the monolith given by Khedive Ismail, May 18, 1879, was erected in Central Park, Jan. 22, 1881. England only got her obelisk after its abandonment at sea and the loss of six lives.

Commander Gorringe reached Alexandria Oct. 16, 1879, and at once began work with one hundred Arabs, who completed the excavation of the obelisk's pedestal, November 6, by removing 1,730 cubic yards of earth. As the native and foreign inhabitants of Alexandria opposed the removal of the obelisk, and threatened violence, the Americans pushed the work night and day. The machinery for lowering and removing the obelisk, shipped from New York, was landed at Alexandria, November 11. The monolith was turned and placed in a horizontal position, amid a crowd of astonished spectators, Dec. 6, 1879.

The work was considerably delayed, because in the foundation and steps to the pedestal were found stones and implements showing Masonic signs and emblems, and it was decided to take them up carefully, carry them to New York, and erect on them the syenite monolith and pedestal exactly as they stood at Alexandria. This plan has been faithfully carried out in New York, every stone being in the same position that it occupied at Alexandria.

In a sort of quadrilateral chamber, within and under the steps of the obelisk, Commander Gorringe found six differently shaped stones of syenite, of black marble, and of white limestone. Some of these stones were rough, some half worked, some partly finished and polished, and some ornamented. On one of them was imbedded a trowel. Commander Gorringe, being a mason, showed them to Ill. Bro. S. A. Zola, 33, S. G. Com., who, in a detailed report, with diagrams and drawings, considered them as indicating "the three symbolic degrees: the apprentices being represented by the rough parts, the fellow-crafts by the worked portions, and the masters by the finished and ornamented



THE HIEROGLYPHS ON THE FOUR SIDES OF THE NEW YORK OBELISK.
(From Champollion.)

parts of the stone, and in which the presence of the trowel is emblematic of the master." The position and arrangement of these stones, pointing east, south, and west, are Masonic.

While busily moving the monolith, pedestal, and steps to the wharf, Commander Gorringe heard of the steamer Dessoug, exactly suiting his purpose to transport the obelisk; but, as she belonged to the Egyptian Government, delicate negotiations had to be entered upon to obtain her at a moderate price; hence he offered £5,000, which was declined, but he was soon notified that he might have her for £5,100, which was paid, and the transfer of the ship made, Dec. 3, 1879.

The Dessoug was refitted by Lieut. Schroeder, and the shaft, pedestal, and steps were transferred to the wharf and embarked, all of which was accomplished, June 12, 1880, when the steamer, with her famous cargo of 1,470 tons, sailed from Alexandria, and arrived at the quarantine station, Staten Island, July 20. From July 20 to 30 the vessel was open to visitors, and on one of those days there were 17,011. The Park Commissioners and Mr. Vanderbilt decided that Graywacke Knoll, near the Metropolitan Museum in Central Park, was the most suitable spot for the obelisk. From August 1 to 4 the foundation-stones and steps of the monolith and its syenite pedestal (forty-three tons) were disembarked at the foot of Fifty-first Street and North river, whence they were transported to Graywacke Knoll. Suitable memorials were collected and hermetically incased, and the Masonic fraternity was invited to lay the corner-stone.

It took some time to adjust the iron tracks and cannon-balls on which the monolith was disembarked at Staten Island from the hold of the Dessoug, Sept. 16, 1880. Next the rise and fall of tide was utilized to float it up the North river and land it at the foot of Ninety-sixth Street, whence it was moved, by steam-power, on tracks with rollers, along Tenth Avenue and across Eighty-sixth Street to Central Park. Oct. 9, 1880, about 9,000 Freemasons paraded up Fifth Avenue, with bands of music, and Grand-Master Jesse B. Anthony laid the stone.

By Jan. 22, 1881, the monolith was ready for erection on its identical Egyptian foundation: steps, pedestal, and brass crabs, constructed exactly as they had been at Alexandria. Even the cold, sleety weather did not prevent an assembly of at least 20,000 spectators. Commander Gorringe gave the signal for turning and lowering, and within five minutes it exchanged its horizontal for a vertical position. The exercises usual on such occasions—prayer, singing, and addresses—followed. The fragments of the brass crabs, brought from Alexandria, are preserved in the Metropolitan Museum. The crabs now at the base of the monolith, fac-similes of the old ones, were cast in New York.

The following is a list of all the known monolith obelisks in the world, that have a history, or are otherwise interesting to the general reader. The Washington Monument is an immense obelisk, but it is not a monolith;

NAMES.	Places and countries.	Height, including pedestal, in feet.	Height of shaft, in feet.	Weight of shaft, in pounds.	When and by whom erected, moved, or transported.
1. New York	United States.....	90	69	448,000	Erected by Thothmes III (18th dynasty, 1591–1565 B. C.) at Heliopolis (On, Gen. xli, 45, 50); thence moved to Alexandria, 22 B. C.; presented by the Khedive Ismail to New York city, 1879; transferred by Commander Henry H. Gorringe from Alexandria to New York, 1880, and erected on Graywacke Knoll, Central Park, Jan. 22, 1881. At Heliopolis and Alexandria it was the mate of the obelisk now on Victoria Embankment, London, England. Three columns of hieroglyphs. The middle column of hieroglyphs was engraved under Thothmes III, and the side columns under Ramses II (19th dynasty, 1388–1322 B. C.). Total expense for removal and erection $103,732, paid by Mr. William H. Vanderbilt, 1881.
2. London	England..........	..	68	418,000	Erected by Thothmes III (18th dynasty, 1591–1565 B. C.) at Heliopolis (On, Gen. xli, 45, 50); thence moved to Alexandria under Augustus, 22 B. C.; presented to England by Mehemet Ali, 1819. Through the liberality of Erasmus Wilson, F. R. S., it was transported by John Dixon, C. E., to London, and erected on Victoria Embankment, 1879. In Egypt it was the mate of the New York obelisk. Three columns of hieroglyphs. Expense of removal and erection about $70,000.
3. Lepsius	Berlin, Germany..	..	2	200	Discovered by Lepsius in an Egyptian tomb, A. D. 1843; dating from the fourth and fifth dynasties (3700–3300 B. C.). It indicates that tapering columns were used as funeral monuments, before they were dedicated to the gods, heroes, and kings.
4. Sta. Maria Maggiore.	Rome, Italy	69	48	102,000	According to Lepsius, it dates from about 2714 B. C. Transferred to Rome under Claudius, A. D. 41–54. Was found in three pieces, unearthed, and erected by Fontana, in the place it now occupies, under Sixtus V, A. D. 1587. It had been considered the mate of Monte Cavallo. No hieroglyphs.
5. Monte Cavallo.	Rome, Italy	95	45	96,000	Considered the twin of Santa Maria Maggiore, and sharing its fate. Was found among ruins, in two pieces, and was erected by Antinori where it now stands, under Pius VI, A. D. 1786.
6. Heliopolis	Egypt............	..	67	271,000	Mariette Bey tells us, that Pharaoh Usurtasen (2371–2325 B. C.) erected it at Heliopolis (On, Gen. xli, 45, 50), 3064 B. C. Bunsen, 2781 B. C.; Brugsch Bey, 2433 B. C.; Lepsius, 2380 B. C.; and Wilkinson, 2080 B. C. According to Mariette's date, it has stood in the original spot five millenniums.
7. Crocodilopolis .	Begig, Egypt.....	..	43	120,000	Ascribed to Pharaoh Usurtasen (12th dynasty, 2371–2325 B. C.). Syenite shaft lying prostrate in two pieces. Differs in shape, two sides being wider than the other two; top round. Some Egyptologists ascribe it to Thothmes I (18th dynasty, 1646–1625 B. C.). Has hieroglyphs.
8. Thothmes I...	Karnak, Egypt ...	..	93	346,000	Ascribed to Thothmes I (18th dynasty, 1646–1625 B. C.). It stands in its original place at Karnak. Hieroglyphs.
9. Hatasu.........	Karnak, Egypt ...	122	97	742,000	Queen Hatasu, daughter of Thothmes I, raised it at Karnak, about 1600 B. C., while she was regent for her minor brother, Thothmes III. It stands in the spot where it was erected. Hieroglyphs.
10. Thothmes III.	Karnak, Egypt ...	..	20	34,000	Attributed to Thothmes III (18th dynasty, 1591–1565 B. C.). Twins are standing in the Temple of Karnak; Rawlinson styles them Boaz and Jachin. Hieroglyphs.
11. Lateran	Rome, Italy	150	106	....	Thothmes III (18th dynasty, 1591–1565 B. C.) ordered it, and his successor Thothmes IV finished and erected it at Thebes, whence Constantine had it transferred to Alexandria, intending it as an ornament for Constantinople; but his son Constantine had it carried to Rome, about A. D. 357. It was found in three pieces, in rubbish sixteen feet deep. Pope Sixtus V had it erected where it now stands, by Fontana, 1587. It is considered the largest obelisk ever quarried at Syene.
12. Constantinople.	Turkey...........	..	58	299,000	Its finely carved hieroglyphs contain the name of Thothmes III (18th dynasty, 1591–1565 B. C.). Brugsch says it originally stood at Heliopolis. It reached Constantinople under Theodosius I, about A. D. 393, and was erected in the Hippodrome, now Atmeidan. The word "Naharana" occurs twice in the inscriptions; hence the idea that Thothmes III pushed his conquests to Assyria, and even so far as India. Some consider it the mate of the Lateran obelisk. It has but one column of hieroglyphs on each side, which Chabas translated.
13. Alnwick	England..........	..	7	600	Ascribed to Amenophis II, Greek Memnon (18th dynasty, 1565–1555 B. C.); discovered in Egypt, transferred to Alnwick Castle, England, by Lord Prudhoe, 1840; has a column of hieroglyphs on one side.

NAMES.	Places and countries.	Height, including pedestal, in feet.	Height of shaft, in feet.	Weight of shaft, in pounds.	When and by whom erected, moved, or transported.
14. Piazza del Popolo.	Rome, Italy	116	78	525,000	Erected by Seti I, Greek Osymandyas (19th dynasty, 1439–1388 B. C.), father of Ramses II, Greek Sesostris; moved to Rome under Augustus, 20 B. C. Pliny ascribes this monolith to Sesostris. In the fourth century, A. D., Hermapion, an Egyptian priest, made a Greek translation of its hieroglyphs, which is preserved in Ammianus Marcellinus. It was found in three pieces under the ruins. Sixtus V had it transferred by Fontana to where it now stands, A. D. 1589. Hieroglyphs.
15. Luxor.........	Luxor, Egypt.....	..	82	568,000	Erected by Ramses II, Greek Sesostris (19th dynasty, 1388–1322 B. C.), at Luxor, where it now stands in its original place among the ruins of ancient Thebes. Its mate was presented to France by Mehemet Ali, transferred to Paris, and erected in the Place de la Concorde by Lebas, 1836.
16. Trinità del Monti.	Rome, Italy	100	43	90,000	Its hieroglyphs contain the names of Seti I, Greek Osymandyas, and Ramses II, Greek Sesostris; yet archæologists think it was ordered from Syene under Severus, A. D. 193–211, because its hieroglyphs are cut so poorly. It stood originally in the Circus, whence it was moved to where it now stands by Antinori, under Pius VI, A. D. 1789.
17. Pantheon	Rome, Italy	48	20	18,500	On its pyramidion occurs the name of Ramses II. Dr. Birch thinks it was erected at Heliopolis, and thence transferred to Rome, where it was found (A. D. 1665) among the ruins of the Temple of Isis and Serapis in the Campus Martius, whence it was removed to the spot it now occupies, under Clement XI, A. D. 1711. It has but one line of hieroglyphs on each side. It has a fountain around its base. Hieroglyphs.
18. Paris	France	92	75	493,000	Erected at Luxor, near Thebes, by Ramses II, Sesostris (19th dynasty, 1388–1322 B. C.); transferred to France by Lebas, under Louis Philippe, A. D. 1833, and raised in the Place de la Concorde, Oct. 25, A. D. 1836, in presence of 200,000 spectators, on a pedestal of granite from Brittany, weighing 236 tons. Beautifully carved hieroglyphs. It is said that Napoleon I desired to see an Egyptian obelisk in Paris, as a reminder of his victory near the Pyramids, 1799. Mehemet Ali granted one to Louis XVIII, after having given one to England, 1819. The expense of its removal from Luxor to Paris ($500,000) was immense, when compared with that of the New York obelisk ($103,732).
19. Villa Mattei...	Rome, Italy	..	8	4,000	Lepsius ascribes it to Ramses II, Sesostris (19th dynasty, 1388–1322 B. C.). Parker thinks it was transferred to Rome under Augustus, 20 B. C. It formerly stood near the Capitol, whence it was transferred to the place it now occupies. It is but a fragment of an Egyptian obelisk, on an ordinary granite pedestal. Hieroglyphs, which contain the cartouche of Ramses II.
20. Boboli Gardens.	Florence, Italy....	..	16	10,000	Dr. Birch attributes it to Ramses II (Sesostris), whose name occurs among its hieroglyphs. It was transferred from Heliopolis to Rome under Claudius, A. D. 41–54), and erected in the Circus Flora, whence the Medici had it transported to the Boboli Gardens at Florence.
21. Jachin and Boaz	Jerusalem, Judea.	27	..	....	We read (I Kings, vii) that pillars surrounded Solomon's Temple, 1004 B. C.; and that Solomon married "Pharaoh's daughter," and built her a magnificent palace; hence the Jewish monarch may have borrowed the idea of pillars from Egypt, where temples had been adorned by pillars, columns, and obelisks for centuries. Two of those pillars, named *Jachin* (foundation) and *Boaz* (strength), found their way into the Masonic ritual, and are symbolized.
22. Vatican	Rome, Italy.......	132	83	721,000	As this monolith has no hieroglyphs, its erector can not be identified. Pliny ascribes it to a Pharaoh whom he calls Nuncoreus, and whom Bunsen considers Menepthah I (19th dynasty, 1322–1302 B. C.). Caligula had it carried to Rome about A. D. 38. Sixtus V had it erected by Fontana in the Piazza of St. Peter, A. D. 1585. Expense of removal (only 825 feet) and erection, $44,000.
23. Monte Citorio.	Rome, Italy	110	71	460,000	Birch ascribes it to Psammetik II (26th dynasty, 596–591 B. C.). It originally stood at Heliopolis, whence it was transported to Rome under Augustus, B. C. 20, and raised in the Campus Martius by Facundus Novus, who adjusted it to serve as a gnomon to indicate the time of day on a dial drawn on the pavement. In A. D. 1748 it was found among the ruins, and transferred to the spot it now occupies, by Antinori, under Pope Pius VII, 1792. Hieroglyphs.
24. Piazza della Minerva.	Rome, Italy	40	18	11,000	Rawlinson attributes it to Hophra (26th dynasty, 591–570 B. C.); transferred to Rome under Domitian. It has been considered the twin of the Pantheon obelisk. It was found among the ruins in the Campus Martius, A. D. 1665, and in 1667 was erected, under Alexander VII, by Bernini, on a poorly sculptured marble elephant, for which the architect was nicknamed "Elephant." Hieroglyphs.

NAMES.	Places and countries.	Height, including pedestal, in feet.	Height of shaft, in feet.	Weight of shaft, in pounds.	When and by whom erected, moved, or transported.
25. Constantinople.	Turkey...........	..	85	118,000	Gliddon, the American Egyptologist, ascribes this obelisk to Nectanebo I (30th dynasty, 377–359 B. C.), the last of the Egyptian Pharaohs. It is not known who transported it to Constantinople, where it now adorns the garden of the Seraglio. Hieroglyphs.
26. Cairo obelisks..	London, England.	..	8	....	Two dark-green basalt columns, in the British Museum, are called Cairo obelisks, ascribed to Nectanebo, the last Pharaoh of the Sebennite dynasty (377–359 B. C.), who erected them before the Temple of Thoth (Mercury). They are admired for their delicately-cut hieroglyphs.
27. Assouan	Syene, Egypt.....	..	95	1,540,000	An obelisk called Assouan, after a town in Upper Egypt, lies in the ancient quarry of Syene, finished on three sides, and adhering to the rock on the fourth side.
28. Corfe Castle...	England..........	..	22	12,000	Erected at Philæ, Upper Egypt, by Ptolemy Evergetes II (170–117 B. C.); moved to England by Belzoni for Henry Bankes, M. P., and re-erected in Mr. Bankes's grounds at Corfe Castle, Dorsetshire, A. D. 1819. The monolith of Syene granite and the pedestal of sandstone were carried to England. It has but one line of hieroglyphs on each side.
29. Piazza Navona.	Rome, Italy	99	54	118,000	Domitian ordered this monolith at Syene, about A. D. 90, and had it brought to Rome and erected in the Circus, whence it was transferred by Bernini, under Innocent X, A. D. 1651, to where it now stands. One column of poorly engraved hieroglyphs.
30. Benevento	Italy	..	10	....	According to Zoega, this obelisk of syenite was found in four pieces, and was erected near the Cathedral, A. D. 1698, where it now stands. Dr. Birch thinks it was originally ordered by Domitian (A. D. 81–96), whose name occurs in the hieroglyphs, with that of Lucilius Lupus.
31. Monte Pincio..	Rome, Italy.......	57	30	42,000	Adrian (A. D. 117–138) ordered this monolith at Syene, and had it erected in memory of his adopted son Antinous, who drowned himself in the Nile, to soothe Adrian's superstitious fears. The hieroglyphs contain the names of Adrian, Sabina, his empress, and Antinous. It was found among the ruins A. D. 1633, and erected in the place it now occupies by order of Pius VII, 1823. Of this obelisk Zoega says: *Hic, e Romanis obeliscis adhuc cognitis solus, expectat sospitatorem* ("Of the Roman obelisks now known, this alone expects a Saviour"). Hieroglyphs.
32. Catania	Sicily..............	..	12	5,000	Not considered an Egyptian obelisk, being polygonal instead of quadrilateral. The Catanians say it was made and erected in their city. It stands in front of the Cathedral, on the back of an elephant, in imitation of Della Minerva, at Rome. Hieroglyphs.
33. Arles	France	50	..	....	Supposed to have been erected by a Roman emperor, in the Circus. It was found buried near the Rhône, and re-erected, A. D. 1676, where it now stands. It is of gray French granite; without hieroglyphs.
34. Nubian obelisks	......	..	..	....	There are obelisks in Nubia, which was a part of ancient Ethiopia; they differ from the Egyptian in shape, and have no hieroglyphs.
35. Assyrian obelisk.	England..........	..	7	....	In the British Museum, London, is a black marble obelisk, erected by Shalmaneser II (853–853 B. C.); has cuneiform inscriptions that mention Shamas-Pul; found among the ruins of Nineveh.
36. Assyrian obelisk.	England..........	..	12	....	In the British Museum, London, is a white obelisk that mentions Assurnasipal in its cuneiform inscriptions; found among the ruins of Nineveh. Assyrian workmanship.
37. Seringapatam..	India.............	70	60	....	The latest obelisk was erected by the Hindoos as a memorial to Josiah Webbe, at Seringapatam, India, A. D. 1805. The pedestal is a monolith nine feet high and seven feet wide. The plinth is a foot and a half thick. The shaft, sixty feet high, and six feet in diameter at the base, was transported two miles from the quarry to the spot where it now stands. The only difference between the Egyptian and the Hindoo obelisk is, that the latter tapers more than the former.
38. American obelisk.	......	..	..	....	In the Academy of Davenport, Iowa, is a tablet of bituminous shale, bearing two designs of an obelisk. We are told that the tablet was found in a tomb of the Mound-Builders.

Herodotus, who visited Egypt and conversed with her priests, about 440 B. C., says (B. II, 111), "To the Temple of the Sun he (Pheron *), son of Sesostris, sent two obelisks, too remarkable to be unnoticed; each was formed of one solid stone, 100 cubits high and eight cubits broad."

Diodorus Siculus, who lived about 60 B. C., tells us, in his "Βιβλιοθηκη ἱστορικη" (Historic Library), that Semiramis (1250 B. C.) ordered an obelisk 130 feet high and 25 feet square from the Armenian mountains, and had it floated down the Euphrates and erected at Babylon, which she made her capital. Pliny tells us: "Rhamsis, who was reigning at the time of the capture of Troy, erected one 140 cubits high, etc. When Cambyses took Heliopolis by storm, and when the conflagration had reached the foot of the obelisk, he ordered the fire to be extinguished, entertaining a respect for this stupendous work that he had not entertained for the city itself." As the Persians were sun- and fire-worshipers, their monarch would of course respect a monument to Mithra. Thus far no really practical use has been assigned to obelisks; because Pliny mentions one, we quote: "The obelisk erected in the Campus Martius has been applied to a singular purpose by the late Emperor Augustus: that of marking the shadows projected by the sun, and so measuring the length of the days and nights. With this object, a stone pavement was laid, the extreme end of which corresponded exactly with the length of the shadow thrown by the obelisk at the sixth hour on the day of the winter solstice. After this period the shadow would go on, day by day, gradually decreasing, and then again would as gradually increase correspondingly with certain lines of brass that were inserted in the stone—a device well deserving to be known, and due to the ingenuity of Facundus Novus, the mathematician."

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* Whence Pharaoh.

We read in Tacitus (B. II, 59): "Germanicus proceeded to the magnificent ruins of Thebes, where still was to be seen on an ancient obelisk a pompous description in hieroglyphs, which an elderly priest translated thus: 'Rhamsis called forth from Thebes 700,000 men capable of bearing arms.'"

In Chabas's translation of the inscription on the Constantinople obelisk we find: "Thothmes, etc., who has gone through the great circuit of Naharana, etc., who has set his boundary, etc., at the extremities of Naharana," etc. (Naharaim, Psa. lx, 1). Here Assyrian Naharana and Hebrew Naharaim mean in Greek Mesopotamia, all three signifying "between rivers." Egyptologists say that Thothmes III (18th dynasty, 1591–1565 B. C.) conquered Mesopotamia and Assyria, and carried his arms as far as India.

In George Smith's translation of cuneiform inscriptions occurs "Assurbanipal," who says, "Two lofty obelisks, covered with beautiful carving, I removed and brought to Assyria." Lately, Arabs have told European explorers, that obelisks have been seen near Hillah, not far from the site of ancient Babylon.

Such is the history, geography, and symbolism of obelisks. Not only has the objective obelisk spread over the globe, but its sound, spelling, and word have entered the world's leading language: Gr. *Οβελισκος*, from *οβελος* (a spit); Lat., obeliscus; Eng., obelisk; Germ., obelisk; Fr., obélisque, etc. In ancient Egyptian it was first *tekken;* next *men* (stability), and later *djeri anschai*, quite a sacred object and word among the Copts now.

We can not close this essay without allusion to the numerous obelistic fragments in and around the humble Egyptian village of San, on the site of the Hebrew Zoan, which was founded about the time when Hebron in Palestine was built, 1918 B. C. (Num. xiii, 22). Zoan (Greek, *Tanis*) was the capital of Manetho's Hyksos, shepherd kings. It also became one of the favorite places of Ramses II, Sesostris, (19th dynasty, 1388–1322 B. C.), whose name and cartouche occur in the inscriptions of those fragments, which have one, two, and three columns of heiroglyphs. Late explorers say the fragments, if collected and restored, would constitute ten or twelve obelisks, each fifty or sixty feet high.

As those that see the New York obelisk will ask the meaning of the brazen crabs under the four corners, let us try to give an explanation, as far as can be done nineteen centuries after its erection at Alexandria. S. A. Zola, Grand Master of the National Lodge of Egypt, made the report on the Masonic signs, emblems, and symbols, discovered in the foundation of the obelisk. Dr. J. A. Weisse wrote "The Obelisk and Freemasonry," Grand-Master Anthony delivered the address at the laying of the corner-stone, Oct. 9, 1880, and Secretary Evarts made the eloquent presentation speech, Jan. 22, 1881; but none of these authors and speakers accounts for the mysterious crabs. None of the other Egyptian obelisks have crabs. No doubt Pontius, the architect, mentioned in the inscription on the crab's claw, had some motive or design. We read in mythology that Hercules, while crushing the head of the Hydra, was clawed and bitten by a huge crab, which he killed. This aid to the weaker was probably the reason for transporting the representative of the crustacean family to the starry heavens, and naming a constellation Cancer (crab), which ancient astronomy included in the twelve signs of the Zodiac. Eratosthenes and Hipparchus adopted Cancer (crab) as the first sign of their Zodiac. In later astronomy, the constellation Cancer is the fourth sign, in or near which the sun seems to stand still, June 22, at a point called solstice; also the parallel, named Tropic of Cancer, is in or near this important sign of the Zodiac. Cancer was considered the house or sign of the moon. Diana was sometimes represented with the figure of a crab.

Manilius, who, under Augustus (22 B. C.–A. D. 14), wrote the famous astrologic poem called "Astronomica," says those born under Cancer—

"Shall sail through seas and dangers tost,
To reap the riches of a foreign coast,
That thrifty Nature has but thinly sown
In many countries, they shall bring to one, etc.
Their bodies shall be strong, inured to pain,
Their wits contriving and intent on gain, etc."

The poet also intimates, throughout his five books, that events happening under this sign would have important results. A work on a subject so novel caused quite a sensation at Rome. Sun-worship was indicated by the crabs, which point to Dionysus (Hercules, primitive sun-god), after whom the ancient architects were named Dionysian. Perhaps Pontius, who moved the obelisks about that time, read the new book, chose the crabs as supports of the monoliths, and erected them while Cancer was in the ascendant. This is the Greek inscription, found on the outer side of the crab's claw: "L. H. KAISAPOS BAPBAPOS ANETHHKE APXITEKTONOYNTOS PONTIOY." This, translated into English, is: "In the year eight of Cæsar, Barbarus dedicated, Pontius being the architect." This Latin inscription is on the inner side of the claw: "ANNO VIII AVGVSTI CAESARIS BARBARVS PRAEF AEGYPTI POSVIT ArchiTecTante PonTio."

Lately the idea has been advanced that the Egyptians had some process by which they could mold and petrify the huge blocks in their pyramids, like bricks, tiles, or pottery. But this assertion vanishes when travelers tell us that the quarries whence those monoliths were taken are usually near the ruins; and the obelisk in the granite quarry at Assouan (Syene), adhering on one of its sides to the rock, while the three other sides are worked, dispels such an idea, and shows that the Pharaohs had those large masses not only quarried, but worked on the spot, in order to avoid transporting any surplus of stone.

OBITUARIES, AMERICAN. **Abbot, Ezra**, an American biblical scholar, born in Jackson, Me., April 28, 1819; died in Cambridge, Mass., March 21, 1884. He was prepared for college at Phillips Exeter Academy and was graduated at Bowdoin College in 1840. Soon after, he went to Cambridge, and in 1856 he became assistant librarian at Harvard College, and was placed in charge of the cataloguing department. In 1872 Dr. Abbot was appointed Bussey Professor of New Testament Criticism and Interpretation in the Divinity School at Cambridge, which chair he held during his life. He received the degree of LL. D. from Yale College in 1869, and that of D. D. (though he was a layman) from Harvard College in 1872. He was distinguished for extensive scholarship in his special line of study, and was appointed a member of the American company of revisers in connection with the Westminster revision of the New Testament. His latest publication (1880) was a valuable treatise on the external evidences of the authorship of St. John's gospel. Dr. Abbot was a Unitarian, and contributed freely to the chief periodicals of that denomination. He also furnished papers for the "North American Review," and the "Journal of the American Oriental Society."

Anthony, Henry Bowen, a United States Senator, born in Coventry, R. I., April 1, 1815; died in Providence, R. I., Sept. 2, 1884. He was of Quaker ancestry. He was educated at Brown University, graduating in 1833, and five years later assumed editorial charge of the "Providence Journal," and subsequently became one of its proprietors. He was elected Governor of Rhode Island in 1849, re-elected in 1850 and then declined being a candidate for a third term. On leaving the Governor's chair, he again devoted himself to editorial work. In 1859 he was elected United States Senator, succeeding Philip Allen, a Democrat, and this office he held thenceforward to the time of his death. He was elected President *pro tempore* of the Senate in March, 1863, and again in March, 1871, serving four years in that capacity. He was also elected to that post in January, 1884, but declined serving, on the ground of infirm health. During Mr. Anthony's long senatorship, he was twice chairman of the Committee on Printing, and introduced numerous reforms in the management of the Government printing-office. He was a member of several important committees—on Claims, on Naval Affairs, on Mines and Mining, and on Post-Offices and Post-Roads. He was a member of the national committee appointed to accompany the body of President Lincoln to Illinois. Though not a brilliant man, and not often heard in debate, Senator Anthony was looked upon as possessing strong common sense and sterling integrity. His course in the Senate was such as to win for him friends on both sides of that body, and as "father," or oldest member, of the Senate, he was welcomed everywhere, and was personally very popular in Washington.

Appleton, Thomas Gold, an American scholar, born in Boston, Mass., March 31, 1812; died in New York, April 17, 1884. His early training was at the Boston Latin School, where he was prepared for college. He entered Harvard, where he had among his classmates J. L. Motley, Wendell Phillips, and other distinguished men, and was graduated in 1831. Mr. Appleton spent much of his time abroad. He was a liberal patron of the fine arts, and gave efficient aid to various institutions, including the Public Library, the Institute of Technology, and the museums at Boston and Cambridge. He was an amateur painter of superior merit, and his water-color sketches of scenes on the river Nile are quite famous. Mr. Appleton was author of several books in prose and verse. In poetry his "Faded Leaves" have been much praised. In prose he published his "Nile Journal," "Syrian Sunshine," "Windfalls," and other works. He was founder of the Boston Literary Club, was highly esteemed for his genial temper and courteous manners, and was looked upon by those who knew him as unrivaled for wit and humor. A volume of his "Life and Letters," prepared by Susan Hale, was published in New York in 1885.

Armstrong, Col. Henry B., an American soldier, born in New York city, May 9, 1792; died in Red Hook, Dutchess county, N. Y., Nov. 10, 1884. He was a son of Gen. John Armstrong, Secretary of War under Madison. His early years were spent in France, where his father was American minister to the court of the first

Napoleon, and his education was received at a French military school, where he went bareheaded for years, hats of all kinds being considered effeminate. Before leaving France, in 1810, young Armstrong frequently saw Napoleon and many of his marshals. On the breaking out of the second war with Great Britain, 1812, he entered the army as captain in the Thirteenth Regiment United States Infantry, and served throughout the war with great gallantry and distinction. He was severely wounded at the assault upon Queenstown Heights, and shared in the capture of Fort George, the battle of Stony Creek, and the sortie from Fort Erie. At the return of peace in 1815, he retired from the army as lieutenant-colonel of the First Regiment of Rifles. For nearly seventy years Col. Armstrong lived the life of a country gentleman on his estate on the banks of the Hudson in Dutchess county.

Arnold, Isaac Newton, an American author, born in Hartwick, N. Y., Nov. 30, 1815; died in Chicago, April 24, 1884. His parents were natives of Rhode Island, whence they removed to western New York in 1800. After attending the district and select schools, he was thrown on his own resources at the age of fifteen. For several years he taught school a part of each year, earning enough to study law, and at the age of twenty was admitted to the bar. In 1836 he removed to Chicago, where he soon established a reputation as an able lawyer. He represented the Second Illinois District in Congress in 1861–'65, and was for many years previously an intimate friend of Abraham Lincoln's. Mr. Arnold wrote a history of Mr. Lincoln's career and the overthrow of slavery. This was followed by a "Life of Benedict Arnold" and a memoir of President Lincoln, published since the author's death, which was in part caused by his assiduous and persistent labor in completing his last literary work. Mr. Arnold was an admirable public speaker, and delivered addresses before various literary societies both in this country and in England.

Beach, William A., an American lawyer, born in Saratoga, N. Y., in 1805; died in Tarrytown, N. Y., June 28, 1884. He began the practice of law in his native town, and continued work there till he was fifty years old. He was elected District Attorney of Saratoga county in 1840. In 1855 he removed to Troy, where he was actively occupied in professional work until 1870, when he removed to New York city and established the law firm of Beach & Brown. He was engaged in various notable cases, as that of Stokes for the murder of Fisk, the impeachment of Judge Barnard, the trial of Henry Ward Beecher, and the Vanderbilt suit.

Benham, Henry W., an American soldier, born in Connecticut in 1817; died in New York, June 1, 1884. He entered the Military Academy at West Point in July, 1833, and was graduated in July, 1837. He was at once placed in the Corps of Engineers, and entered upon duty in the work of improving Savannah river. In July, 1838, he was promoted to the grade of first lieutenant in the Engineer Corps, and from 1839 till 1844 was superintending engineer of the repairs of Fort Marion and of the sea-wall at St. Augustine, Florida. During the following three years he was engaged upon Government works in Pennsylvania, Maryland, and elsewhere. He was with the army in Mexico in 1847 and 1848, and was brevetted captain for gallant and meritorious services in the battle of Buena Vista, Feb. 23, 1847. After the Mexican War, he was engaged for a time in works of engineering in New York harbor, and was promoted to the rank of captain in the Engineer Corps in May, 1848. He was also in charge of several other works of importance at Boston, Washington, and Buffalo, from 1848 to 1853. In the latter year he was assistant in charge of the United States Coast Survey office at Washington, and was sent to Europe on duty connected therewith. During the following seven years he was fully occupied in professional work for the Government at Boston, Newport, and Sandy Hook, and on the Potomac Aqueduct. At the outbreak of the civil war, in 1861, Capt. Benham entered upon active service; was on Gen. Morris's staff as engineer of the Department of the Ohio; was brevetted colonel for gallantry at the battle of Carrick's Ford, Va., July 13, 1861; in August was made brigadier-general of volunteers, and was present at several engagements during the latter part of the year. In 1862 he superintended fortifications in Boston harbor, and the construction of the fortifications of Portsmouth harbor, and also was in command of the northern district of the Department of the South. He proved himself to be very efficient in throwing ponton-bridges across the Rappahannock, the Potomac, and the James rivers, and was in command of the ponton department at Washington in 1864. In March, 1865, he was brevetted brigadier-general for gallant services in the campaign that terminated with the surrender of Lee's army. He was also promoted to the rank of major-general in the United States Army. During 1867 Gen. Benham was engaged in Government works on the coast of New England, and from October, 1869, to July, 1877, was similarly occupied in the works on Long Island Head. Subsequent to this he was in charge of the defenses of New York harbor. He was placed on the retired list, June 30, 1882.

Benjamin, Judah P., an American lawyer, born in St. Croix, West Indies, in 1811; died in Paris, France, in May, 1884. He was of English parentage and of the Jewish faith, and was brought by his father to Wilmington, N. C., in 1816. He entered Yale College in 1825, where he remained three years, and, without graduation, went to New Orleans in 1828, where he was admitted to the bar in 1832. He took an active part in politics, and was elected to the United States Senate in 1852, and re-elected in 1858.

When the civil war broke out, he abandoned his place in the Senate, and avowed his adhesion to the State of Louisiana. He went to New Orleans in 1861, and was invited by Jefferson Davis to the post of Attorney-General in his Cabinet, and afterward was successively Secretary of War and Secretary of State, until the overthrow of the Confederacy; after which he escaped, by way of Nassau, New Providence, to England, arriving there in September, 1865. The next year he was admitted to the bar. He soon acquired a successful practice, and received a silk gown in June, 1872. In 1868 he published a "Treatise on the Law of Sale of Personal Property," which was received with much favor, and reached a second edition in 1873. He met with a serious fall from a tramway-car several years ago, and his health failed him almost entirely. He rejoined his wife in Paris, after many years of separation, and, having acquired a handsome competency, he built a house there, where he spent the remainder of his days.

Betts, William, an American lawyer, born in Bechsgrove, St. Croix, West Indies, Jan. 28, 1802; died in Jamaica, Long Island, N. Y., July 5, 1884. His early education was obtained in Jamaica; thence he went to Union College, where he stayed a year, and, entering Columbia College, was graduated in 1820. He studied law with David B. Ogden, and subsequently entered the office of his father-in-law, Beverley Robinson. Mr. Betts was counsel to several old and large corporations in New York, was a trustee of Columbia College and of the College of Physicians and Surgeons, and from 1848 to 1854 was Professor of Law in Columbia College. He received the degree of LL. D. in 1850. Failure of sight compelled Dr. Betts to give up active service in his profession subsequent to 1876, but he retained vigor of mind and body to the last year of his life.

Bishop, Anna, a singer, born in London, England, in 1814; died in New York, March 18, 1884. Her maiden name was Anna Rivière, and she married Sir Henry Rowley Bishop, a well-known composer and musician. She appeared on the concert stage in 1837, and some years later came to the United States. In 1850 she gave a series of concerts in New York which were very popular and successful. It is said that Madame Bishop had sung in nearly every country in the world, and in the languages of all civilized peoples. Her last tour around the world was begun in 1875, after which she lived in the city of New York with her second husband, Mr. Schultz, to whom she was married in 1858. She appeared in public for the last time in 1883.

Bowman, Francis Caswell, an American lawyer and author, born in 1834; died in New York, Oct. 29, 1884. He was graduated at Brown University, and studied law in New York. On the outbreak of the civil war, he joined the Seventh Regiment, and engaged in the organization and service of the United States Sanitary Commission at Washington. Mr. Bowman was a frequent contributor to journals and magazines, and for seventeen years was musical editor of the New York "Sun." He also wrote many articles for the "American Cyclopædia," on musical topics. He was an accomplished musician, and founded the Mendelssohn Glee Club, and was its president for five years.

Brignoli, Pasquale, an Italian singer, born in Italy about 1823; died in New York, Oct. 29, 1884. Signor Brignoli came to the United States in 1855. He had previously sung with marked success in the principal opera-houses of Europe, but in America he achieved his highest reputation and spent the largest portion of his life. His first engagement in New York was in the opera company of Max Maretzek. His reputation as a tenor singer was universal, and his popularity was unbounded. He supported Madame Patti on her first appearance in the United States, about twenty years ago, and performed similar service for nearly every great singer that has visited this country.

Brown, John, an American clergyman, born in New York city, May 19, 1791; died in Newburg, N. Y., Aug. 15, 1884. He entered Columbia College and was graduated in 1811; studied for the ministry of the Episcopal Church under Bishop Hobart, and took orders in 1812. His earliest services were at Fishkill. In 1815 he accepted a call to the rectorship of St. George's Church, Newburg, and in this field of labor he spent over sixty years in active duty, during which he not only built up his own congregation into a strong parish, but also largely aided feebler churches in Orange and neighboring counties. Dr. Brown was understood to be the oldest Episcopal clergyman in the United States. He was also regarded as the oldest member of the Masonic order in America, having been initiated, June 16, 1817, in Hiram Lodge, Newburg. When General Lafayette visited the United States, in 1824, Dr. Brown, at a reception held at Washington's headquarters, delivered the address of welcome. In subsequent years he held office in the Masonic order, and at the time of his death was Chaplain of Hudson River Lodge, No. 607, in Newburg.

Burnett, Ward Benjamin, an American soldier, born in Pennslyvania in 1811; died in Washington, D. C., June 24, 1884. He was graduated at West Point in 1832. He served in the Black Hawk expedition, in garrison at Fort Jackson, La., as an instructor at West Point, and in ordnance duty in Florida. He resigned in 1836, and became a civil engineer. At the opening of the Mexican war he was made colonel of the Second New York Engineers, and was sent to join the army under Gen. Scott. He was engaged with his regiment in the siege of Vera Cruz, and in the battles of Cerro Gordo, Contreras, and Churubusco, in the last of which he was badly wounded. In 1848 he returned to New York, where he received the thanks of the Legislature for gallant and meritorious conduct, and was made brevet brigadier-general of New York Volunteers. He also received other marks of high appreciation of his services while in Mexico. He was occupied for some time in public duty in the Philadelphia and Brooklyn Navy-Yards. In 1853–'54 he was Chief-Engineer of the Brooklyn Water-Works, for which he made new plans. In 1856 he went to Norfolk, Va., and took charge of the water-works there, and from 1858 to 1860 he was United States Surveyor-General of Kansas and Nebraska Territories. Gen. Burnett was an invalid during the latter years of his life, and gave up all active duty. He was buried at West Point.

Cary, Joseph C., an American inventor, born in Brockport, N. Y., in 1829; died in Martha's Vineyard, Mass., Aug. 7, 1884. He was the inventor of Cary's steam rotary force-pump. About 1860 he built two steam fire-engines, to which his pump was applied, for use in New York city. These engines propelled themselves through the streets by steam-power, and were capable, with ten men, of doing the work of five hundred with the hand-engines at that time in use. They proved to be very efficient at several large fires, and helped to save many millions of property. Mr. Cary entered Wall Street as a speculator about twenty years ago, and was also successful in connection with the Central Cross-town road in New York.

Channing, William Henry, an American clergyman, born in Boston, Mass., in 1810; died in London, England, in December, 1884. He was graduated at Harvard College in 1833, and was ordained as a Unitarian minister in May, 1839. He held several posts of prominence in his profession in various cities and towns of his native country, and subsequently became the successor of James Martineau in Liverpool, England. Mr. Channing was an author of considerable repute, and contributed largely to religious papers and reviews. In 1840 he published a translation of Jouffroy's "Ethics." In 1848 he compiled the memoirs of his uncle, the distinguished Unitarian theologian and controversialist, Dr. W. E. Channing. He also published the life and writings of J. H. Perkins, in two volumes, and the memoirs of the Marchioness Ossoli (Margaret Fuller).

Clarkson, Robert Harper, an American clergyman, born in Gettysburg, Pa., Nov. 19, 1826; died in Omaha, Neb., March 10, 1884. He was graduated at Pennsylvania College in 1844, studied theology at St. James's College, Maryland, and was ordained deacon in 1848, and priest in 1851. He became rector of St. James's Church, Chicago, in 1849, and served for sixteen years. He was consecrated Missionary Bishop of Nebraska and Dakota, Nov. 15, 1865, and entered at once upon his work. Bishop Clarkson was distinguished for earnest devotion to the duties of his office, was very successful in promoting the interests and advancement of the Episcopal Church in the Northwest, and was an able and effective preacher.

Clemmer, Mary (Hudson), an American author, born in Utica, N. Y., in 1839; died in Washington, D. C., Aug. 18, 1884. She was educated at Westfield (Mass.) Academy, and when very young began to write for the "Springfield Republican." Afterward she became a regular contributor to the "New York Independent," in which appeared for many years her "Woman's Letter from Washington," by which she was best known in the literary world. At an early age she married the Rev. Daniel Ames, from whom she was afterward divorced. She was an intimate friend of Alice and Phœbe Cary, whose biography she wrote. She also published monographs on Charles Sumner, Margaret Fuller, George Eliot, Emerson, and Longfellow. She wrote two novels, "Eirene" (1870) and "His Two Wives" (1874), "Ten Years in Washington" (1871), "Outlines of Men, Women, and Things" (1873), and a volume of poems (1882). With the earnings of her pen she bought a house in Washington, which was a social as well as literary center for many years, and in 1883 she married Edmund Hudson, editor and proprietor of the "Army and Navy Register." She was thrown from a carriage in 1878, and received injuries that made her somewhat of an invalid ever after. A complete edition of her works is announced for publication in 1885.

Duganne, Augustine J. H., an American author, born in Boston, Mass., in 1823; died in New York, Oct. 20, 1884. While quite a young man he contributed to the journals a number of patriotic songs and poems, which speedily became very popular throughout the country. These were subsequently gathered and published in a volume entitled "Hand Poems," which met with a large sale. A few years later he issued a tragedy, "The Lydian Queen," "Parnassus in Pillory," etc., and in 1852–'54 three other poems, "The Mission of Intellect," "The Gospel of Labor," and "The True Republic." Mr. Duganne wrote several prose works, and was connected for years with the daily press. On the outbreak of the civil war he went to the front with the One Hundred and Seventy-sixth Regiment of New York Volunteers. He did good service as colonel of the regiment, was captured by the enemy and confined in a Southern prison for several months, and on his return to New York gave an interesting account of his experiences, in a volume entitled "Twenty Months in the Department of the Gulf." Colonel Duganne resumed editorial and literary work after the war, but for the last few years of his life was compelled by ill health to forego active work. His latest production was a satire on the well-known skeptic, R. G. Ingersoll, entitled "Injure Soul."

Emott, James, an American jurist, born in Poughkeepsie, N. Y., in 1821; died there, Sept. 11, 1884. He was educated at College Hill

School, in his native town, and Columbia College, and pursued his legal studies in his father's office and under his father's personal tuition. He began to gain distinction soon after his admission to the bar, and when Poughkeepsie became a city he was elected its first mayor. His reputation as an advocate increased until 1855, when he was elected a Justice of the Supreme Court for the Second District. He continued to serve as judge during the eight years of his term. In 1862 he was appointed presiding justice for his district. In the following year, which was the last of his term, he sat, according to the system then in operation, as a Judge of the Court of Appeals. His opinions rank among the best-written in the reports of the State. Soon after leaving the bench, Judge Emott removed to New York, where he entered actively into the practice of law, and his tall and slender but commanding figure was one of the most familiar sights in the courts. He was for thirty-two years President of the Merchants' Bank of Poughkeepsie, and for a much longer period devotedly attached to the organ, on which he played daily, and to his large and valuable library. Judge Emott was a member of the Episcopal Church, and always zealous in ecclesiastical affairs; an able, earnest churchman of the best school, holding many responsible posts in churches, and particularly efficient as an executive officer in other institutions connected with the Church.

Faulkner, Charles James, an American lawyer and politician, born in Berkeley county, Va., in 1806; died in Boydville, W. Va., Nov. 1, 1884. He studied law, and was admitted to the bar in 1829. Three years later he became a member of the Virginia House of Delegates, where he introduced a measure looking to the gradual abolition of slavery in Virginia; by declaring that all children born of slave parents after July 1, 1840, should be free; but the proposition was voted down. Mr. Faulkner after this devoted himself to the work of his profession, and speedily took high rank in it. He was elected State Senator in 1841, but resigned in the following year. In 1848 he was elected to the House of Delegates, and introduced a bill that was passed and sent to Congress, which became the famous "Fugitive-Slave Law" of 1850. The next year he was elected to Congress, and then was re-elected by the Democratic vote for four successive terms. When James Buchanan became President in 1857, he offered Mr. Faulkner the mission to France, which, at first declined, was accepted in 1859. Louis Napoleon was induced by the American minister to sympathize with the South in the approaching contest, rather than with the nation, and accordingly President Lincoln recalled Mr. Faulkner, who, on his return to the United States, was arrested and thrown into prison as a disloyal citizen. When released he joined the Confederate army, and served until the surrender of Lee. For some years he was debarred the rights of citizenship on account of having borne arms against the Government, but in 1872 his political disabilities were removed, and in 1874 he was elected to the House of Representatives. He was a candidate subsequently for the United States Senate and for the governorship of West Virginia, but failed of success in both. He then retired to private life.

Foster, Joel, an American physician, born in Barnard, Vt., March 10, 1802; died in New York city, June 29, 1884. He was a graduate of Jefferson Medical College, Philadelphia, and removed to New York in 1855. When President Lincoln called for volunteer physicians in 1861, Dr. Foster, who had been an active abolitionist, with nearly forty others, started for the field, where he did good service, which was appropriately acknowledged by the Government. Dr. Foster was one of the founders of the Academy of Medicine in New York city, and was identified with the Infant Asylum.

Fuller, George, an American artist, born in Deerfield, Mass., in 1822; died in Boston, March 21, 1884. At the age of fourteen he went to Illinois. He manifested strong natural talent for art, went to Albany, N. Y., in 1842, and was in the studio of H. K. Brown for about a year. Thence in a few years he made his way to New York city, where in due time he met with success. He was elected an associate of the National Academy in 1857, and traveled extensively in the United States as well as abroad. He returned to his farm in Deerfield for some years, but in 1876 he exhibited fourteen pictures in Boston, and was again busy with art.

Garrett, John Work, an American banker and railroad president, born in Baltimore, Md., July 31, 1820; died there, Sept. 26, 1884. He received his literary training at Lafayette College, Easton, Pa., and passed thence to his father's counting-room, where he obtained a thorough business education. For several years his time and attention were bestowed upon the affairs of the large banking-house of Robert Garrett & Sons, and he accumulated great wealth. In 1856 he became interested in the Baltimore and Ohio Railroad, and the following year, having clearly set forth his views as to the true policy of management of the road, he was elected president of the company. This post he held up to the time of his death. By strict economy and resolute carrying out of business principles in every department, Mr. Garrett succeeded in relieving the road of its financial difficulties and placing its affairs on a prosperous and sound footing. The only serious difficulty that occurred during his presidency was the great strike of employés, in 1877, owing to a dispute in regard to wages. For a few days there was a mob raging against the president; but order was restored, and Mr. Garrett soon after proved his sincere concern for the interests of those in the employ of the company by the establishment of the Baltimore and Ohio Railroad Employés' Relief Association. This has proved to be a decided success, and is in the hands of the employés themselves. During the civil war Mr. Garrett was enabled to render efficient service to the cause of the Union by using the facilities of the Baltimore and Ohio road for conveying troops and supplies, and this service was warmly acknowledged by President Lincoln and Secretary Stanton. In addition to his labors in the railroad's affairs, Mr. Garrett was largely concerned in various other matters, was one of the trustees of the Johns Hopkins estate, and was active in politics.

Greene, Samuel Dana, an American naval officer, son of Gen. George S. Greene, formerly of the army, born in Rhode Island, Feb. 11, 1840; died by his own hand, at Portsmouth Navy-Yard, Dec. 11, 1884. He was educated at the Naval Academy, and served his country afloat and ashore for almost a quarter of a century. He was in command of the original Monitor after Capt. Worden was wounded, at the moment the Merrimac was driven back into James river. Just before his death, Commander Greene completed for "The Century" an account of the famous engagement, which will be included in that magazine's series of war papers. There can be no doubt that his suicide was an act of insanity, as no cause for it is known.

Gregory, Samuel B., an American naval officer, born in Marblehead, Mass., in December, 1818; died in Hamilton, Mass., June 7, 1884. At the outbreak of the civil war he offered his services to the Government, and in December, 1861, he was given command of the steamer Western World, with which he took part in the capture of Fort Pulaski. In 1863 he was on blockade duty in Chesapeake Bay. A reward being offered by the President of the Confederacy for his body, dead or alive, he sent word ashore that if any one belonging to his vessel was injured, he would lay the country waste for twenty miles. No one was molested. In August of that year, while boarding his ship in a gale, he received injuries that ultimately caused his death. In July, 1868, Gen. Dix made a demonstration from Yorktown, Va., *via* White House, against Richmond. The Eleventh Pennsylvania Cavalry were waiting transportation, and Capt. Gregory said, "Take my gunboat." The general commanding expressed surprise at the offer of a gunboat for such a purpose, when Capt. Gregory said, "We are here to put down the rebellion, and nothing is too great to be used for that purpose." Three hundred and sixty horses and men went on board, and in twelve hours were on their way to Bottom's Bridge.

Gross, Samuel D., an American surgeon, born in Easton, Pa., July 8, 1805; died in Philadelphia, May 6, 1884. He began the study of medicine in his native place, and went thence to Jefferson Medical College, Philadelphia, where he was graduated in 1828. He practiced for some years in Easton; then, in 1833, he was made Demonstrator of Anatomy in the Medical College of Ohio, at Cincinnati, and in 1835 was appointed Professor of Pathological Anatomy in the same institution. Five years later he became Professor of Surgery in the University of Louisville, Ky.; and in 1850 he succeeded Dr. Mott in the University of New York. By the urgent request of his associates, he returned to Kentucky and resumed work there, after only a single session in New York. In 1856 he was elected to the chair of Surgery in his *alma mater*, Jefferson College, Philadelphia, which post he occupied with honor and success till within two years of his death, when he resigned on account of advancing years and desire for repose. Dr. Gross was author of numerous valuable works, including his "System of Surgery," "Elements of Pathological Anatomy," "Diseases of the Bones and Joints," "Results of Surgical Operations in Malignant Diseases," and "Manual of Military Surgery." In 1872 he received the degree of D. C. L. from the University of Oxford, and LL. D. from the University of Cambridge. He was a member of numerous foreign as well as home medical and surgical associations, and made many contributions to professional periodicals.

Hamilton, Philip, youngest son of the great statesman, Alexander Hamilton, born in New York city, June 1, 1802; died in Poughkeepsie, N. Y., July 9, 1884. For forty years he occupied the chair of judge of a district court in the city of Rochester. He was at one time Assistant District Attorney of New York, and conducted the trial of the noted pirate Gibbs, in 1861. He was also Judge Advocate of the Naval Retiring Board at the Brooklyn Navy-Yard. His latter years were spent mostly in retirement.

Harriman, Walter, ex-Governor of New Hampshire, born in Warner, N. H., in 1817; died in Concord, N. H., July 25, 1884. He obtained a common-school education, and became a Universalist preacher in Warner, and afterward in Harvard, Mass. In 1849–'50 he was a member of the Legislature of his native State, and in 1856 was appointed by President Pierce one of the Board of Commissioners to classify and appraise Indian lands in Kansas. He took the stump in favor of the Know-Nothing party in 1855–'56, and supported the nomination of Stephen A. Douglas for President in 1860. Mr. Harriman entered the Union service in 1862, and became a brigadier-general. He was made prisoner at the battle of the Wilderness, and was badly treated, in company with other officers, but was finally exchanged. He was a warm supporter of the Republican ticket, Lincoln and Johnson, in 1864. He returned to his command in November of that year, and entered Petersburg with the victorious army. Gen. Harriman was elected Governor of New Hampshire, in 1867, by the Republicans. He was actively engaged in politics for several years, and for a considerable period held the post of United States Naval Officer at Boston, under the Administration of President Grant. He made a tour in the East in 1881, and published a volume giving an account of it.

Harris, Elisha, an American physician, born in Westminster, Vt., March 4, 1824; died in Albany, N. Y., Jan. 31, 1884. In early life he taught school, and aided himself in this wise while obtaining his own education. He was graduated, in 1849, at the College of Physicians and Surgeons, New York, and began practice in that city. He took an active part in the sanitary service during the civil war, and invented a railroad ambulance, which carried off a prize at the Paris Exposition. On the organization of the Metropolitan Health Department in 1866, Dr. Harris was made Secretary and Register of Records. In 1869 he was appointed Sanitary Superintendent; but as the New York charter was amended, he went out of office the next year. He was reappointed in 1873. He left the department in 1876, when the Bureau of Vital Statistics was reorganized, and was subsequently appointed commissioner on the State Board of Health and Secretary. Dr. Harris issued a number of valuable books in connection with sanitary improvements, and was widely known for his zeal, energy, and unceasing labors in that cause.

Henry, Caleb Sprague, an American clergyman, born in Rutland, Mass., Aug. 2, 1804; died in Newburg, N. Y., March 9, 1884. He was graduated at Dartmouth College in 1825, and studied theology at Andover Seminary for three years. He entered the Congregational ministry in 1829, and served at various places for the next six years. In June, 1835, he was ordained deacon in the Protestant Episcopal Church, and the next year was ordained priest. For two years (1836–'38) he was Professor of Moral and Intellectual Philosophy in Bristol College, Pennsylvania, and in 1839 he was appointed Professor of Philosophy and History in the University of the City of New York. This post he held until 1852. For three years (1847–'50) he was rector of St. Clement's Church, New York city, and later he held the rectorship of St. Michael's Church, Litchfield, Conn. (1870–'73). Dr. Henry published several works, and in company with Rev. Dr. F. L. Hawks and Dr. J. G. Cogswell established the "New York Review" (1837–'43). He also translated from the French works by Victor Cousin and F. P. Guizot.

Hoe, Robert, an American manufacturer of printing-presses, born in New York city in 1810; died in Tarrytown, N. Y., Sept. 13, 1884. Mr. Hoe was not only a very successful man in his business operations, but was also a public-spirited, liberal-minded citizen. He was one of the founders of the Academy of Design in his native city, a patron of young artists, and an earnest Christian.

Hoffman, Charles Fenno, an American author, born in New York city, in 1806; died in Harrisburg, Pa., June 7, 1884. He was a son of Judge Josiah O. Hoffman, and brother of Ogden Hoffman. He entered Columbia College, but did not remain till graduation, and was admitted to the bar in 1827. Disliking the legal profession, he resolved to devote himself to literature, and at the age of twenty-four he joined Charles King in work on the "New York American," a journal of some influence. In 1833 Mr. Hoffman established the "Knickerbocker Magazine," and soon after that he became editor of the "American Monthly." Two years later he published "A Winter in the West," which met with much favor. Other works followed. In 1840 appeared his first work of fiction, entitled "Greyslaer," a romance founded on the trial of Beauchamp for the murder of Col. Sharpe in Kentucky. He published in 1842 a collection of his poems, under the title of "The Vigil of Faith, and other Poems," which appeared in 1845, revised and enlarged, as "Love's Calendar." Some of Mr. Hoffman's songs and lyrics have obtained a permanent place in literature, notably "Sparkling and Bright," and "Monterey." In 1846 he became editor of the "Literary World," which post he held for three years, till he was seized with a mental disorder, which rendered him incapable of literary or other work, and from which he never recovered.

Hubbard, Richard Dudley, an American lawyer, born in Berlin, Conn., Sept. 7, 1818; died in Hartford, Conn., Feb. 28, 1884. He was graduated at Yale College in 1839, was admitted to the bar in 1842, and practiced his profession till the close of his life. He was elected to the Assembly from East Hartford in 1842, and represented Hartford in the same body in 1855 and 1858. From 1846 to 1868 he was State Attorney for Hartford county. He was a member of Congress in 1867, but declined a re-election. As Democratic candidate for Governor, he was defeated in 1872, elected in 1876, and defeated again in 1878. During the civil war, Mr. Hubbard was an earnest supporter of the Union cause.

Hunt, William H., an American lawyer and publicist, born in South Carolina, in 1834; died in Petersburg, Va., Feb. 27, 1884. In "nullification" times his father opposed Calhoun's doctrines, and found it expedient to leave the State. He removed with his family to New Orleans. William Hunt was educated at Yale College, after leaving which he studied law, and was admitted to the bar. When the civil war broke out, in 1861, Mr. Hunt espoused the cause of the Union. He was busily occupied in the duties of his profession during the larger part of his life. In 1876 he was chosen Attorney-General of Louisiana. The next year he took up his residence in Washington. In 1878 he was appointed Justice of the Court of Claims of the United States. In 1880 he was selected by President Garfield as Secretary of the Navy, but when Mr. Arthur came into power he sent Justice Hunt as United States minister to succeed Mr. Foster at the court of St. Petersburg.

Hunter, Charles F., an American merchant and financier, born in Bloomingburg, N. Y., October, 1819; died in Salem, N. Y., July 19, 1884. He entered mercantile life at the age of twenty-one, and acquired a fortune. In a period of great depression he became President of the People's Bank, New York, a post that he filled for twenty-seven years with eminent success. During the civil war he did good service as a member of the Clearing-House, and in the panic of 1873 he was chairman of the Loan Committee. He was also occupied in various kindred duties as director, trustee, and executive.

Ivison, Henry, an American publisher, born in Glasgow, Scotland, Dec. 25, 1808; died in New York, Nov. 26, 1884. He came to the United States when twelve years old, and learned the book business, chiefly in Utica, N. Y. He was for several years head of a bookstore in Auburn, N. Y., and removed to New York city in 1846. He there entered into partnership with M. H. Newman, a successful school-book publisher. Thenceforward Mr. Ivison devoted himself entirely to the specialty of educational works. After Mr. Newman's death, in 1858, Mr. Ivison associated with himself Mr. H. F. Phinney, of Cooperstown, and on Mr. Phinney's retirement in 1866, the firm was enlarged to the present style, Ivison, Blakeman, Taylor & Co. Mr. Ivison retired from active participation in business in 1882.

Johnson, Alvin Jewett, an American publisher, born in Wallingford, Vt., Sept. 28, 1827; died in New York city, April 22, 1884. When a boy he worked on a farm, and having acquired a fair education he went to Virginia to teach school. In 1853 he settled in New York city, and became agent for "Colton's Atlas." Not long afterward he reconstructed the work, and issued it thenceforth as "Johnson's Illustrated Atlas." He also engaged in preparing and publishing books, including a cyclopædia that was issued under the editorial supervision of President Barnard, of Columbia College. Mr. Johnson was an active business man, and acquired a handsome fortune.

Kinsella, Thomas, an American journalist, born in Ireland in 1832; died in Brooklyn, N. Y., Feb. 11, 1884. He came to the United States when a boy, and entered a printing-office. Some years later he was admitted into the office of the "Brooklyn Eagle" and became a contributor to its columns, chiefly in reporting cases in the police courts of that city. In 1861, the "Eagle" having expressed unusual and strong sympathy with the South, the editor was displaced, and Mr. Kinsella was put in charge. He held this post during the rest of his life. In 1865 he supported President Johnson, and was made Postmaster of Brooklyn. In 1868 he was appointed a member of the Board of Education, and also one of the Water and Sewerage Board. He was elected to Congress in 1870, and supported the nomination of Horace Greeley for President of the United States in 1872. He was also a supporter of Gov. Tilden in 1876. In 1880 he was instrumental in securing the nomination of Gen. Hancock for the presidency, and organized "Jeffersonian Clubs," but with only partial success. Mr. Kinsella was a ready and able writer, and made the "Eagle" prosperous and influential.

Letcher, John, an American politician, born in Lexington, Va., March 29, 1813; died there Jan. 26, 1884. He was educated at Washington College and Randolph-Macon College, Virginia. He was admitted to the bar in 1839, became editor of a newspaper, and was a member of the Virginia Constitutional Convention in 1850. He was elected to Congress on the Democratic ticket four times in succession—1851 to 1859. At the latter date he was elected Governor of Virginia. The State Legislature passed a secession ordinance while Letcher was Governor, with a provision that it be submitted to a vote of the people six weeks later. Without waiting for the popular decision, Gov. Letcher at once turned over to the Confederate authorities the entire forces of the State. After the failure of the Confederacy he took no prominent part in politics, but devoted himself to the practice of law in his native place.

Lovell, Mansfield, an American soldier, born in Washington, D. C., in 1820; died in New York city, June 1, 1884. He was graduated at the Military Academy, West Point, in 1842; was appointed second lieutenant in the artillery, and served at various points in Maryland, Pennsylvania, and Virginia. He also took part in the occupation of Texas in 1845–'46. He was with his regiment in the Mexican War, and acquired reputation at Monterey, Vera Cruz, and Chapultepec. He was present at the capture of the city of Mexico, where he received a severe wound. For four years, 1850–'54, he was in command of the recruiting depot at Fort Columbus, New York. He then resigned from the army, went into business in New York, and in 1858–'61 was Deputy Street Commissioner. At the outbreak of the civil war he entered the service of the Confederacy. When the Union cause triumphed, he retired to a rice-plantation near Savannah; but not long after he came to New York again and was engaged as assistant engineer under Gen. Newton.

Lyman, David Belden, an American missionary, born in New Hartford, Conn., July 28, 1803; died in Hilo, Hawaiian Islands, Oct. 4, 1884. He was graduated at Williams College in 1828, studied at Andover Theological Seminary, and was ordained in Hanover, N. H. He married Miss Sarah Joiner, in Royalton, Vt., Nov. 3, 1831, and on the next day they set out for Boston, to join a company of nineteen missionaries who were about to sail in the whale-ship Averick for the Hawaiian Islands. This was the fifth and the largest company of Protestant missionaries that had yet gone out to that group. The voyage lasted from Nov. 26, 1831, to May 17, 1832, when they reached Honolulu. Mr. and Mrs. Lyman were assigned to the station at Hilo, then one of the remotest of the group, now a beautiful and thriving town. Here the young couple began their life-work. A few converts had been made by preceding missionaries, but the tasks of education and of preaching were scarcely yet begun. Mr. Lyman, even before he had fairly learned the native language, in which the missionary work was done, was placed in charge of the Hilo church, and of its extensive outlying dependencies in the districts of Hilo and Puna; and here he preached, taught, and traveled incessantly, and with the most promising results. In 1836 two co-laborers arrived, Titus and Fidelia Coan. The growing pastoral charge was assigned to Mr. Coan, while Mr. Lyman's remarkable ability and success as a teacher led the mission to engage him in founding an academy for native young men. Fifty or sixty of the brightest pupils were selected from the primary schools; they received careful instruction in geography, history, and algebra; while Mrs. Lyman taught them in household arts and in music, instructing the young men even in the making of clothes and in sewing, arts for which the Hawaiian women have never shown a marked inclination. The school was admirably disciplined, and was made self-supporting. A farm was cultivated under Mr. Lyman's energetic supervision, and the pupils were supplied with food mainly through their own labor. Mr. Lyman's time and services were devoted to the establishment of the Hilo boarding-school, which he administered with zeal, tact, and unbroken success; and in addition to this work, the pastoral duty of the Hilo church also fell to him during Mr. Coan's frequent tours through his extended field. These arduous labors were continued as long as physical strength remained to Mr. Lyman. On his retiring, in 1873, from his more active service, he divided the care of the academy, which remains in flourishing existence, among younger men. The length of Mr. Lyman's uninterrupted service on a single field has very seldom been equaled in missionary records; it covered a period of fifty-two years, unbroken by any vacation, or indeed by any absence other than that which was required by attendance upon the missionary meetings in Honolulu. He was buried by the side of his beloved fellow-worker, Titus Coan. A more faithful, active, and honored man has seldom gone out to mission-fields. Mr. Lyman had six children, of whom Prof. Henry M. Lyman, of Chicago, is the eldest.

McCormick, Cyrus Hall, an American inventor and manufacturer, born in Walnut Grove, Va., Feb. 15, 1809; died in Chicago, Ill., May 13, 1884. His father was a large owner of mills and machine-shops, and, having a talent in that line, invented a reaping-machine. But he did not succeed in perfecting it. This important result was accomplished by his son Cyrus, who in 1834 secured a patent for the invention. The reaping-machine was placed in the market in 1840, and five years later Mr. McCormick moved to Cincinnati, Ohio, and patented various improvements. In 1847 he removed to Chicago, and the next year began building his machines in his own shops. He made a large fortune through his reaping-machines, received numerous prizes and medals, and used his wealth liberally in the cause of education.

McDowell, Katherine S. (Bonner), an American author, born in Holly Springs, Miss., Feb. 26, 1849; died there, July 22, 1884. She received her education at seminaries in Mississippi and Alabama, the family moving from one place to another before the advance of the national forces. The most vivid of her early memories were scenes in the civil war, when she witnessed the passing and repassing of portions of either army. With a zealous personal devotion to the South as her home, she had a hatred of slavery, and a natural affinity with the intellectual activity of the North. In 1870 she married Edward McDowell, a young man of good family in Holly Springs, who had been educated in England. They had one child, a daughter. In 1872 business called Mr. McDowell to Texas, and Mrs. McDowell carried out her long-cherished purpose of visiting Boston. There she became a member of the family of Nahum Capen, Esq., and soon made the acquaintance of the best-known literary people. For two or three years, during the winter months, she was private secretary to the poet Longfellow, who took pleasure in introducing her to his friends as one destined to make a name in literature. A personal friend says: "She was of distinguished personal appearance—tall, willowy, graceful, and of the fairest complexion, with hair of a rich golden auburn color, that almost touched the carpet when unloosed, and eyes of ever-changing brilliance, that sparkled with the sunniest humor and animation whenever they relaxed from their usually almost austere dignity of expression." Her first contribution to the Boston press that attracted attention was a satirical poem entitled "The Radical Club." It was said to have killed that club, which had been called the "Den of the Unknowable" and the "Cave of the Unintelligible." Subsequently, under the pen-name of "Sherwood Bonner," she published "Like unto Like" (1881), a novel of Southern life during the reconstruction period, and "Dialect Tales" (1884). It is said that all of these sketches are close studies from life. In 1878, when yellow fever was raging in the lower Mississippi valley, she left her home in Boston and went to Holly Springs, where she nursed her father and brother till they died. Her own death, which followed eight months of suffering, was caused by cancer in the mouth.

Marsh, Sylvester, an American engineer, born in Massachusetts in 1803; died in Concord, N. H., Dec. 30, 1884. He went to Chicago in 1834, when that city was only a hamlet. In 1852 he was lost on Mount Washington, and then conceived the idea of the railway to its top. He had great difficulty in getting a charter for it, owing to the remarkable character of the scheme, and, as he told the writer, was at that time commonly known as "Crazy Marsh." But he carried the enterprise through, and completed the road in 1869. He left a large property, chiefly the proceeds of his railway.

Marshall, Orsamus H., an American lawyer, born in Franklin, Conn, Feb. 1, 1818; died in Buffalo, N. Y., July 9, 1884. His father was a physician. The son was graduated at Union College in 1831. He then attended law lectures at Yale College, and was admitted to practice in 1834. For forty years he was a well-known member of the Buffalo bar, and for half of that period stood as high in the ranks as any member of the legal profession in western New York. As an historical writer and student, Mr. Marshall contributed many valuable papers to the periodicals and to the Buffalo Historical Society, of which, with President Fillmore, he was one of the founders. Many of his publications were the result of original researches among the archives of France, which have given him a distinctly recognized place in that department of literature. His time and energies were freely given to the cause of intellectual culture, charity, and enterprises affecting the higher interests of the people among whom he lived. He spent the last winter of his life at Nassau, New Providence, and in Florida.

Morphy, Paul, an American chess-player, born in New Orleans, June 22, 1837; died there, July 10, 1884. He was a creole of Spanish descent, and his father was Judge of the Supreme Court of Louisiana. He was taught chess by his father, and at the age of twelve years was one of the best amateur players in New Orleans. His education was obtained at a South Carolina college, and his profession was nominally the law; but he gave himself up to chess, and became the most distinguished player in the world. In 1849 he defeated Herr Lowenthal, the celebrated Hungarian player, two games out of three. He was present at the first American Chess Congress, held in New York, in October, 1857, and went home the acknowledged champion chess-player of America. In 1858 he visited Europe, and there met and vanquished all opponents. He challenged Howard Staunton in England, who at the time was regarded as king of chess. The challenge was at first accepted, but Staunton finally declined to play against Morphy. In Paris he beat Horrwitz in five games out of seven, and during his stay in Europe he played some wonderful blindfold games. He also beat other distinguished chess-players, and his superiority was generally conceded. Subsequently he challenged the world, and agreed to give any player a pawn-move; but the challenge was never accepted. Twenty years ago, Morphy suddenly abandoned chess-playing, having conceived an absolute abhorrence for it. He steadily refused to converse on the subject, shunned the society of players, and occupied himself in legal pursuits.

Packard, Alpheus S., an American scholar, born in Chelmsford, Mass., in 1798; died on Squirrel Island, Me., July 13, 1884. He was graduated at Bowdoin College in 1816, became a tutor there in 1819, was appointed Professor of Latin and Greek in 1824, and was made vice-president not long after. His whole life was spent in the service of his *alma mater*. From 1864 he was Professor of Natural and Revealed Religion, and on the retirement of President Chamberlain he became acting president, the duties of which office he was discharging at the time of his death. His labors were continuous for more than sixty years.

Packard, Lewis R., an American educator, born in Philadelphia, Pa., in 1836; died in New Haven, Conn., Oct. 26, 1884. He was graduated at Yale College in 1856, and went to Germany, where he pursued an extended course of study, and received the degree of Ph. D. On his return home he studied theology, and in 1868 was appointed assistant Greek professor in Yale College. Three years later he was made full professor. His health was never vigorous, and, though undoubtedly a good scholar, he did not gain the reputation to which his abilities and learning entitled him. In 1883 he was at Athens, Greece, in charge of the Archæological School established there by American colleges.

Palmer, William Pitt, an American author, born in Stockbridge, Mass., in 1805; died in Brooklyn, N. Y., May 2, 1884. He was graduated at Williams College, and took up his residence in New York city. He studied medicine for a time, did some teaching, and contributed frequently to journals and magazines. He wrote also a considerable number of poems. Mr. Palmer entered the service of the Manhattan Insurance Company, and in a few years became its president. The company was ruined by the Chicago and Boston fires, and Mr. Palmer then became Vice-President of the Irving Insurance Company. Several of his poems have gained wide reputation, such as the "Ode to Light," and "Orpheus and Eurydice."

Phelps, Almira Hart Lincoln, an American educator, born in Berlin, Conn., July 13, 1793; died in Baltimore, Md., July 15, 1884. She began teaching school at the age of nineteen, and for more than forty years was engaged in this occupation. In 1817 she married Simeon Lincoln, of Hartford, editor of the "Connecticut Mirror." He died in 1823, and eight years afterward Mrs. Lincoln married John Phelps, an eminent lawyer of Vermont. In 1824 she became associated with her sister, Mrs. Emma Willard, in the Female Seminary at Troy, N. Y. Here she remained until 1831, after which date she occupied herself chiefly in preparing educational works. These were very successful and brought her name into prominence as an educator. In 1841, at the invitation of the

Bishop of Maryland, she removed to Baltimore with her husband, and established the Patapsco Female Institute. Mr. Phelps died in 1848, and for eight years following Mrs. Phelps conducted the institution alone with marked success. After this, having been forty-four years in the service, she gave up active duty, and spent the evening of life in quiet with her family. Her educational works, which had a large sale, were devoted mainly to natural science. Among the others were "The Female Student" and "Hours with my Pupils."

Phelps, Royal, an American merchant, born in Sempronius, N. Y., March 30, 1809; died in New York city, July 30, 1884. He received a good common-school education, and early in life made his way to St. Croix, West Indies. There he entered the office of a coffee-merchant and prospered. In 1840 he went into business on his own account, and established houses at Puerto Cabello and Laguayra. In 1847 he went to New York and became one of the firm of Maitland, Phelps & Co. He was a very able and energetic business man, and acquired a large fortune. Mr. Phelps was active in support of the Union cause on the outbreak of the civil war. He was Vice-President of the New York Chamber of Commerce, and of the Eye and Ear Infirmary, trustee of Roosevelt Hospital, and filled other similar offices.

Pierce, George F., an American clergyman, born in Greene county, Ga., in 1811; died in the vicinity of Sparta, Ga., Sept. 3, 1884. He was graduated at Franklin College, Athens, in his native State, in 1829. He studied law for a short time, but in 1831 entered the itinerant Methodist ministry. He was at first on the Alcora circuit, but three years later he was transferred to Savannah. In 1839 he was made President of the Wesleyan Female College at Macon, and later of Emory College, both of which institutions owe much to his labors and abilities. In 1843–'44 he built St. John's Church, Augusta, Ga., and in 1854 was elected Bishop of the Methodist Episcopal Church South. In 1859 he made an overland journey to San Francisco, on a stage-coach, and other long journeys, in the work in which he was engaged.

Schell, Augustus C., an American lawyer, born in Rhinebeck, N. Y., Aug. 1, 1812; died in New York city, March 27, 1884. He was graduated at Union College in 1830, studied law, and was admitted to the bar. He entered upon his political career in 1852, when he was made chairman of Tammany Hall General Committee and selected as Democratic candidate for Governor of New York. He was not elected; and in 1854, when he was nominated by the party for mayor of the city, he declined. During the Buchanan Administration, 1857–'61, he was Collector of the Port of New York. After this he occupied himself in railroad and other enterprises. In 1862 he was a director of the Harlem Railroad, and as a warm friend of Mr. Vanderbilt he became a director of the Hudson River and other railroads. He was also a director of the Western Union Telegraph Company from 1870, and was largely interested in the management and care of financial trusts, as well as of philanthropic institutions. In 1867 he was a member of the convention to revise the Constitution of the State, and did good service in that connection. After the downfall of the Tweed ring in New York, he aided in reorganizing and strengthening the Democratic party in the city, under the leadership of Tammany Hall. In 1878 he was an unsuccessful candidate for mayor.

Sheldon, Smith, an American publisher, born in Charleston, N. Y., in 1811; died in Nyack, N. Y., Aug. 30, 1884. His first business venture was in the dry-goods trade at Albany, N. Y., where he acquired a considerable fortune. He removed to New York city in 1854, and established a publishing-house which proved to be a success. Mr. Sheldon was a member of the American Bible Society, a trustee of Vassar College, and also of Rochester University and Madison University, and was an active member of the Baptist Church.

Simpson, Matthew, an American clergyman, born in Cadiz, Ohio, June 21, 1811; died in Philadelphia, Pa., June 17, 1884. He was educated at Madison College, Pennsylvania, and became a tutor in that institution. He soon returned to Ohio, where he began the practice of medicine, but finally entered the Methodist ministry. In 1837 he was elected Vice-President of Allegheny College, where, at the same time, he discharged the duties of Professor of Natural Science. In 1839 he became President of the New Indiana Asbury University, and for nine years labored in building it up. In 1848 he was elected editor of the "Western Christian Advocate," published in Cincinnati. At the General Conference, held in New York in 1844, Dr. Simpson took strong ground against slavery, which he always opposed, and in so far aided in the formation of the Methodist Episcopal Church South. In 1852 he was elected one of the bishops in the Methodist Church. In 1857 he represented American Methodism at the Irish and British Conferences, and the same year was a delegate at the Berlin session of the Evangelical Alliance. He also took the opportunity to make an extensive tour through Europe, Egypt, and Syria, from which he returned to America in 1858 with impaired health. Having regained strength, he entered afresh upon his work, and traveled widely in the interests of his church. In 1881 he was a delegate to the Œcumenical Methodist Conference held in London, and was one of the speakers at Exeter Hall. He was intimate with President Lincoln and Secretary Stanton, and was frequently consulted by them on questions of importance. He was also an industrious writer. His "Hundred Years of Methodism," "Cyclopædia of Methodism," "Lectures on Preaching" (1882–'83), and other works, afford evidence of his ability and carefulness in the use of his pen. His power as a public speaker was far beyond the average, as was shown markedly in an oration delivered by him in the New York Academy of Music, during the civil war, entitled "The Future of Our Country."

Slater, John F., an American philanthropist and manufacturer, born in Slaterville, R. I., March 4, 1815; died in Norwich, Conn., May 7, 1884. His father was an extensive cotton-manufacturer, and John was early trained for the business that he afterward carried on so largely and successfully. By energy, diligence, and superior business ability, Mr. Slater enlarged his operations, and in 1872 became sole owner of the mill property he was then conducting. He also made excellent investments, and in a few years acquired millions. He was early interested in the cause of education, and gave liberally to the establishing of the Norwich Free Academy, and in other quarters; but his crowning work was the placing in the hands of trustees, in April, 1882, of $1,000,000, the interest of which is to be used for the education of the freedmen in the South. Ex-President Hayes, Chief-Justice Waite, Rev. Phillips Brooks, and others, are the trustees.

Smith, Benjamin Bosworth, an American clergyman, born in Bristol, R. I., June 13, 1794; died in New York city, May 31, 1884. He was graduated at Providence College (now Brown University) in 1816. The next year he was ordained deacon, and in 1818 priest. He began his ministerial labors in St. Michael's Church, Marblehead, Mass., and subsequently held other parishes in Vermont, Virginia, and Kentucky. He was rector of Christ Church, Lexington, Ky., from 1830 to 1837, and in October, 1832, was consecrated Bishop of the Diocese of Kentucky. The consecration took place in St. Paul's Church, New York. Three others were made bishops at the same time, viz., Hopkins, McIlvaine, and Doane. As the first Bishop of Kentucky, Bishop Smith had a field of arduous labor before him, requiring unwearied patience and perseverance, and the encountering of many hardships in the oversight of the wild and sparsely settled country. He gave himself to his work with zeal and courage, and after more than forty years' service alone, he was furnished with an assistant, Bishop Dudley, who succeeds him in Kentucky. On the death of Bishop Hopkins, in 1868, Bishop Smith, being senior, became the presiding bishop in the Episcopal Church. The latter years of his life the venerable prelate spent in New York, where, in 1882, was celebrated the fiftieth anniversary of his consecration. He was State Superintendent of Education in Kentucky for many years, and urged forcibly the cause of common schools. During the civil war, he arrayed himself on the side of the Union, and endeavored in every way in his power to promote the welfare of the negro population.

Storey, Wilbur F., an American journalist, born in Salisbury, Vt., Dec. 19, 1818; died in Chicago, Ill., Oct. 27, 1884. He was early apprenticed to the printing business, and at the age of seventeen went to New York and obtained employment in the office of "The Journal of Commerce." In 1838 he migrated to the West, and made several ventures in journalism in Indiana and Michigan. In 1842 he was appointed postmaster in Jackson, Mich., and he was a member of the State Constitutional Convention in 1849. Five years later he removed to Detroit, and purchased "The Free Press," which proved very successful in his hands. In 1861 he sold out his interest for $50,000, took up his residence in Chicago, and purchased "The Times" from Cyrus H. McCormick. In this enterprise he brought to bear all his ability and energy, and though the tone of his paper was not to be commended, though he indulged in personalities and bitter attacks in various directions, yet he brought "The Times" into the front rank as a news-gatherer, and secured its entire success as a business venture. Mr. Storey amassed large wealth, and built himself a marble palace in Chicago. For three or four years before his death he suffered from a stroke of paralysis.

Swayne, Noah Haynes, an American jurist, born in Culpeper county, Va., Dec. 8, 1804; died in New York city, June 8, 1884. He received a good academic training at Waterford, Va., studied law in Warrenton, and was admitted to the bar in 1823. Soon afterward he removed to Ohio, and in 1825 opened an office in Coshocton. His talents brought him into notice, and he was appointed prosecuting attorney. In 1829 he was elected to the Ohio Legislature, and the year following was appointed by President Jackson United States Attorney for the District of Ohio. This post he held for ten years. In January, 1862, he was appointed by President Lincoln one of the Justices of the Supreme Court of the United States. He entered upon his duties and faithfully discharged them until January, 1881, when he resigned on account of advanced age. The degree of LL. D. was conferred upon him by Dartmouth and Yale Colleges.

Swisshelm, Jane Grey, an American journalist, born in Pittsburg, Pa., Dec. 6, 1815; died there, July 22, 1884. Her father's name was James Cannon. In 1836 she married James Swisshelm, who subsequently obtained a divorce from her on the ground of desertion. She was the author of a series of letters on the Mexican War, which attracted considerable attention. In 1848 she established the "Pittsburg Saturday Visiter," which she edited till 1857, when she removed to St. Cloud, Minn., where for a few months she published another "Saturday Visiter," which for its anti-slavery sentiments was destroyed by a pro-slavery mob, who broke into the office and threw the press and types into the river in March, 1858. She then established the St. Cloud "Democrat," and appeared as a speaker at anti-slavery meetings. During the civil war she served as nurse in Campbell Hospital, Washington, D. C., and after the battle of the Wilderness had charge of 182 badly wounded men at Fredericksburg for five days, with no surgeon or assistant, and saved them all. She was a frequent contributor to periodical literature, and published in book form "Letters to Country Girls" (1853) and "Half a Century" (1880). During her last years she resided at Swissvale, Allegheny county, Pa.

Totten, George M., an American engineer, born in New Haven, Conn., in 1809; died in New York city, May 17, 1884. He was educated at Partridge's Military Academy, Middletown, Conn., and began the work of a civil engineer on the Farmington Canal. Subsequently he went to Pennsylvania, and was there employed upon the Juniata Canal. In 1831 he was one of the engineers of the Delaware and Raritan Canal, in New Jersey, and in 1835 was engaged in building the railroad from Reading to Port Clinton. For several years following he was busily occupied in building railroads in Virginia, Pennsylvania, and North Carolina. In 1843 he was appointed engineer-in-chief of the canal of Digna, which connects Magdalena river with the harbor of Carthagena, in Colombia. Col. Totten next took the contract, in company with John Trautwein, for constructing the Panama Railroad. He was appointed engineer-in-chief of the work in 1850, and spent twenty-five years amid toils, privations, and sufferings of every kind, in this arduous task. In 1879 he joined M. de Lesseps on the commission that went to the Isthmus to decide upon the canal project. Afterward he went to Venezuela to survey a railroad, and later he was appointed consulting engineer of the Panama Canal.

Webb, James Watson, an American journalist, born in Claverack, N. Y., Feb. 8, 1802; died in New York city, June 7, 1884. He was educated at Cooperstown, N. Y., and, having a decided taste for military life, he obtained a lieutenancy in the artillery and was ordered to report at Governor's Island. In 1825 he was appointed adjutant, and served for a time under Gen. Scott. In April, 1827, he resigned from the army, for the purpose of entering upon journalism. That same year the "Morning Courier" was founded, and Webb became its editor. Two years later the "Enquirer," edited by Major Noah, came into Webb's hands, and henceforth the paper was known as the "Courier and Enquirer." It existed until 1861, when the "World" took its place. Mr. Webb's career as an editor was various and exciting. He supported Andrew Jackson, and afterward opposed his measures. He was concerned in several serious disputes, two or three of which resulted in duels. President Taylor nominated him for minister to Austria, but, owing to high political excitement against that empire, the nomination was not confirmed. President Lincoln appointed him minister to Brazil, which terminated his connection with the newspaper press, and this post he held until Gen. Grant's election. He returned from Brazil in 1869, and then spent some years in Europe.

Williams, Samuel Wells, an American scholar, born in Utica, N.Y., Sept. 22, 1812; died in New Haven, Conn., Feb. 17, 1884. He was educated at the Rensselaer Polytechnic Institute, Troy. He went to Canton, China, in 1833, as printer to the American Board of Foreign Missions, did excellent service there, and edited the "Chinese Repository." In 1835 he printed, at Macao, Medhurst's "Hokkeen Dictionary." He visited Japan in 1837, studied Japanese, and later translated the books of Genesis and St. Matthew into that language. In 1842 he published his "Easy Lessons in Chinese," and in 1844 his "Chinese Commercial Guide," and "English and Chinese Vocabulary." Mr. Williams came to the United States in 1845, and remained three years, engaged in lecturing. In 1848 he published "The Middle Kingdom," which gave his countrymen clearer and juster ideas of what the Chinese Empire really is. In 1848 he returned to China with a new font of type. He accompanied Commodore Perry, in 1853–'54, to Japan, and served as interpreter to the expedition. He was also appointed secretary of legation. In 1856 he published another Chinese Dictionary, and assisted Minister Reed in negotiating a treaty. He revisited the United States in 1860–'61, and returned to China the next year. In 1874 he brought out the great work of his life, "The Syllabic Dictionary of the Chinese Language." He came back finally to the United States in 1876. He received the degree of LL. D. from Union College, and was appointed Lecturer on Chinese in Yale College.

Work, Henry Clay, an American song-writer, born in Middletown, Conn., Oct. 1, 1832; died in Hartford, Conn., June 8, 1884. While he was still a child the family removed to Illinois, where he received a common-school education. At the age of eleven he had become interested in Greek and Latin, and attempted the invention of a new language. In one scheme he used the English letters, and for another he invented a new alphabet. The difficulty of procuring writing-paper in his prairie home curtailed his attempts in the way of producing new literatures. A few years later he returned with the family to Connecticut, and was apprenticed to a printer. While working at the case, he found time to study harmony and to contribute to the poet's corner. For his first song, written at this time, he received twenty-five dollars. Afterward he became somewhat known as one of the few who can both write the words for a song and compose the music, and the excitement and enthusiasm of the civil war gave the best possible opportunity for the exercise of such powers. Among his most famous productions of that era are "Nicodemus the Slave" and "Marching through Georgia." The most widely circulated of the later ones was "My Grandfather's Clock." Mr. Work was also an inventor, and patented a knitting-machine, a walking doll, and a rotary engine. He went abroad in 1865, and on his return invested the fortune that his songs had brought him in a fruit-raising enterprise at Vineland, N. J. The failure of this was followed by domestic sorrows, and for several years he was in retirement. In 1875 he became connected, as composer, with Mr. Cady, the music publisher, whose house had been the publisher of Work's songs till the plates were destroyed in the great Chicago fire of 1871. After that his residence was in New York city.

OBITUARIES, FOREIGN. Alexander, Prince of Orange, the last male heir to the throne of Holland, born Aug. 25, 1851; died June 21, 1884. Always weak in health, gentle in disposition, and scholarly in his tastes, unlike his dissipated elder brother, who died before him, he avoided all society, living among his books and ornithological collections in the historical house of De Witt, which Motley occupied, at the Hague. The quarrel between his father and mother, which drove his brother into reckless excesses and a determined purpose to disgrace his royal station, plunged him into melancholy and gave him an aversion to marriage. After the death of his mother and brother, he became more of a recluse than before. In two pamphlets he explained the reasons for his way of life. The remarriage of King William completed the breach between father and son. Prince Alexander was the last descendant on the male side of the great house of Orange.

Alexander, Rev. **William Lindsay,** a Scottish clergyman, born in Edinburgh, Aug. 24, 1808; died at Pinkieburn, near Edinburgh, Dec. 21, 1808. He completed his studies at the University of St. Andrews, in his native city, and became minister of a Congregational church in Edinburgh in 1835. He was made Professor of Theology to the Congregationalists of Scotland in 1854, Examiner in Philosophy of St. Andrews University in 1861, and a member of the Old Testament Revision Committee in 1870. His writings include "Congregational Lectures for 1840 on the Connection and Harmony of the Old and New Testament" (2d ed. 1853); "Anglo-Catholicism not Apostolical" (1843); "Christ and Christianity" (1854); "Life of Dr. Wardlaw" (1856); "Christian Thought and Work" (1862); and "St. Paul at Athens" (1865). He brought out the third edition of Kitto's "Biblical Cyclopædia," and was a frequent contributor to periodical literature. In 1876, when Dr. Alexander completed the fortieth year of his ministry, he was presented by his congregation and other friends with a princely testimonial. He had lived in retirement for the last three years.

Ampthill, Odo Russel, Baron, an English diplomatist, born in Florence, Feb. 20, 1829; died in Berlin, Aug. 25, 1884. He was sent to England by his father, Maj.-Gen. Lord George William Russel, for his education, and he began his diplomatic career as soon as he left Oxford, at the age of twenty. He served one year in Berlin, two in the Foreign Office in London, was sent by Lord Derby to Paris in 1853, and in 1854 to Constantinople, where he was left in charge during the absence of Lord Stratford de Redcliffe in the Crimea. In 1857 he was attached to the legation in Washington, and in 1858 was sent to Naples and on a special mission to the Pope, whence he was recalled to become Under-Secretary in 1870. The same year he was sent as Envoy Extraordinary to the German headquarters in Versailles, and upon the recall of Lord Loftus was appointed ambassador to Berlin, Oct. 16, 1871, in which post he remained until his death, a favorite of the royal family, particularly of the Crown Prince, and a congenial host to the aristocratic and the literary circles of Berlin. For his services as a representative of Great Britain at the Berlin Congress, he was created a peer in 1881.

Behm, E., a German geographer, died in Gotha, March 15, 1884. He edited a geographical annual, prepared the statistics for the "Gotha Almanac," published a periodical abstract of statistics on the population of the globe, and, after the death of Dr. Petermann, edited the "Mitteilungen."

Bickersteth, Robert, Bishop of Ripon, born in Acton, in Suffolk, England, Aug. 24, 1816; died in Ripon, Yorkshire, April 15, 1884. He was graduated at Cambridge, with high honors, in 1841, and was ordained to his father's curacy at Sapcote, Leicestershire. After acting as rector of several parishes, he was in 1854 appointed Canon Residentiary of Salisbury, and in 1856 was promoted to the See of Ripon. He was a member of a family whose name and praise are in all the churches. He belonged to the party that is loyal to English Protestantism. Zealous in good works, tolerant in his opinions, gentle in temperament, and kindly in his dealings with all men, he was eminently suited for the position that he so successfully filled for so many years. He published "Bible Landmarks" (1850); "Lent Lectures" (1851); "Sermons" (1866), and numerous single sermons and lectures on various subjects.

Blunt, John Henry, an English author, born in Chelsea in 1823; died at his rectory of Beverstone, in Gloucestershire, April 11, 1884. Among other works on ecclesiastical history and doctrine, he wrote the "Directorium Pastorale," the "Annotated Bible" and "Book of Common Prayer," and a "History of the Reformation."

Bohn, Henry George, an English publisher, born in 1795; died in London, in August, 1884. He was engaged in the book-trade from 1815, when he was German traveler for his father, a German bookseller established in London, until he sold out his large business and retired in 1865. He became widely known by the "Guinea Catalogue," issued in 1841. In his classical, antiquarian, ecclesiastical, scientific, historical, and philosophical libraries, he employed the best pens in England. He compiled hand-books of games, proverbs, and geography, and edited "Lowndes's Manual," the "Bibliotheca Parriana," and Addison's works. He was an active member of the Society of Antiquaries, a collector of works of art, and, after retiring from business, an amateur of rare plants.

Buccleuch, Walter Francis Montague Douglas Scott, fifth Duke of, born Nov. 25, 1806; died at Dalkeith Palace, near Edinburgh, the place of his birth, April 16, 1884. He was the eldest son of the fourth duke, and succeeded to the dukedom April 20, 1819. He received his education at Eton and at St. John's College, Cambridge. He took an active part in the House of Lords as a Conservative, was Lord Privy Seal in 1842–'46, and was President of the Council in Robert Peel's second administration. The Duke was well known as the friend of Sir Walter Scott and the Ettrick Shepherd, and as a princely patron of art and letters. He was the richest of the Scottish nobles, possessing half a million acres and the magnificent estates of Bowhill, Drumlaurig, and Dalkeith. Montague House, his London residence, is among the first houses in England. Throughout his long life he stood at the head of the class called by Disraeli "the high nobility." Mr. Gladstone, during his Midlothian campaign, invariably spoke in the highest terms of Buccleuch. In his opening speech he said, "He is in all respects what a British nobleman should be, and sets us all an example in the active and conscientious discharge of duty." The Duke was succeeded by his eldest son, William Henry Walter Scott, born Sept. 9, 1831, who for twenty years has been a member of Parliament.

Byron, Henry James, an English dramatist, born in Manchester in January, 1834; died in London, April 18, 1884. He was the son of the English consul at Port-au-Prince. He left the bar, to write for the stage, and became one of the most successful of English writers of comedy. In depicting London vulgarity and in humorous dialogue he was unrivaled. His dramas are loosely constructed representations, usually of domestic life, enlivened by bright dialogue and farcical incidents. Among the long list of his works, "Cyril's Success" is one of the most thoughtful, and "Our Boys" the most successful.

Calverley, Charles Stuart, an English author, born in 1831; died in London, Feb. 17, 1884. He was a barrister in London, but gave his leisure largely to light literature, and was for several years a lecturer at Cambridge. He published "Translations into English and Latin" (1866); "Verses and Translations" (1871); and "Fly-Leaves" (1872). The last-named were mainly parodies on the styles of well-known living authors, and were so exceedingly clever as to make parody almost a fine art. His books passed through many editions in England, and a volume containing all but the translations was published in New York. His rendition of Theocritus has been especially praised.

Cetewayo, ex-King of Zululand, died at Ekowe, of heart-disease, Feb. 8, 1884. (For the principal details of his life, see the "Annual Cyclopædia" for 1882.) In the battle with Usibepu, in 1883, he was wounded. The English arrested him on the neutral territory, and kept him a prisoner at Ekowe. He made several attempts to escape.

Chenery, Thomas, an English journalist, born in the Barbadoes, in 1826; died in London, Feb. 8, 1884. He was educated at Oxford, was called to the bar, and was sent to Constantinople as correspondent of the London "Times." He acquired a remarkable colloquial and philological knowledge of Oriental languages, and after his return to England, after the Crimean War, besides writing leading articles and reviews for the "Times," he made translations from the Arabic and assisted in the revision of the Old Testament. In 1868 he became Professor of Arabic at Oxford. He still remained on the staff of the "Times," and when Mr. Delane's health failed, in 1867, succeeded him as editor.

Costa, Sir Michael, an Italian composer, born in Naples, Feb. 4, 1810; died in West Brighton, April 29, 1884. He composed operas and sacred pieces at a very early age. At the age of nineteen he went to England to conduct a cantata written by his master, Zingarelli, for the Birmingham Festival. The committee refused his services, but, remaining in England, he soon obtained an appointment as orchestral leader, and became the favorite conductor of orchestral and choral concerts. He did much to confirm the English admiration for Handel. Among his principal compositions are the oratorios "Eli" and "Naaman."

Cowley, Earl, an English diplomatist, born in 1804; died in London, in July, 1884. He was the son of Baron Cowley, the younger brother of the Duke of Wellington and the Marquess Wellesley. His life from his twentieth year was spent in the diplomatic service, in which profession his father won his title, to which he succeeded in 1847. In 1857 he was made an earl. He was an *attaché* at Vienna in 1824, served in various grades at the Hague, Stuttgart, Constantinople, and Frankfort, and was appointed Ambassador Extraordinary and Minister Plenipotentiary to France Feb. 15, 1853. In arranging the alliance and the plan of joint operations in the Crimean War, in the conclusion of the Treaty of Paris in 1856, where he was associated with Lord Clarendon, in the embarrassing Orsini affair of 1858, in the period of tension that followed the outbreak of the Austrian War in 1859, after the failure of his attempted mediation, which became acute when France annexed Nice and Savoy, and in the negotiation in association with Cobden of the reciprocity of 1860, by which the cordial relations between France and England were restored and strengthened, Lord Cowley displayed diplomatic tact and skill of the highest order. The rejection of Napoleon's proposals for a congress in 1863 rests chiefly with Earl Russel. The Danish War, the Mexican Expedition, and the Austro-Prussian War of 1866, imposed new tasks on the British representative in Paris. He retired from the French embassy in 1867, and took no further part in public life,

Droysen, Johann Gustav, a German historian, born in Treptow, in Pomerania, July 6, 1808; died at Berlin, June 19, 1884. He was the son of a clergyman, and became a tutor in Berlin in 1833, made translations from Æschylus and Aristophanes, wrote a history of Alexander the Great and one of Greek civilization, became a professor at Kiel in 1840, and there took a prominent part in the agitation for the union of the Danish duchies with Germany. He was a member of the Frankfort Parliament, and reporter of the Committee on the Constitution. His patriotism led him to take up modern German history, and in 1846 he published lectures on the War of Deliverance. He was called to Jena in 1851, and about 1859 to Berlin. Besides numerous other treatises, he wrote a great work on the "Political History of Prussia," which he only brought down to the middle of Frederick the Great's reign.

Fleury, Emile Felix, a French general, born in Paris, Dec. 23, 1815; died Dec. 11, 1884. After squandering his patrimony, he gained rapid promotion in the Algerian corps of Spahis, and, returning to France in 1848, became an ardent Bonapartist. He took part in the Kabyle expedition of 1851, and during the *coup d'état* received a wound in the head. He was the efficient director of the imperial stud, was nominated a Senator in 1865, was sent on a confidential mission to King Victor Emanuel in 1866, and in 1869 and until the fall of the empire was ambassador at St. Petersburg.

Hayward, Abraham, an English author, born in Lyme Regis, Oct. 31, 1802; died in London, Feb. 2, 1884. He was the son of a gentleman that was known as a writer on agriculture and horticulture. He began life as a solicitor, but in 1832 was called to the bar. He published a translation of the first part of "Faust" in 1833 (completed in 1847), and thenceforth devoted himself more to literature than to law. He was especially noted for his brilliant essays. His works include: "Statutes founded on the Common Law Reports" (1832); a translation of Savigny's "Vocation of our Age for Legislation and Jurisprudence" (1839); "Law regarding Marriage with the Sister of a Deceased Wife" (1846); "Juridical Tracts" (1856); "Biographical and Critical Essays" (2 vols., 1858–'73); "Autobiography, Letters, and Remains of Mrs. Piozzi" (2 vols., 1861); "Selections from the Diary of a Lady of Quality, from 1797 to 1844" (1864); and "More about Junius" (1868).

Hillebrand, Karl, a German author, born in Giessen, Sept. 17, 1829; died in Florence, Oct. 19, 1884. He was a son of the philosopher Joseph Hillebrand, and studied law in Heidelberg and Giessen. He was condemned to death by a court-martial for participation in the insurrection in Baden in 1849, but escaped to France, passed through all the degrees in the Paris University, and became a teacher of German at St. Cyr in 1863 and at Douai in 1866. He wrote in French "On Good Comedy" (1863), "Contemporary Prussia" (1867), "Italian Studies" (1867), and "On the Reform of Higher Education" (1868). Driven out of France as a German on the outbreak of the war, he went to Italy as correspondent of the "Times," and settled in Florence, writing for newspapers and reviews in French, English, and German. His German essays were collected in two volumes, entitled "Italia," and "Times, Nations, and People."

Hochstetter, Ferdinand von, a German geologist, born in Esslingen, in 1829; died July 18, 1884, in Ober-Döbling, near Vienna. He was the son of a clergyman, and was educated for the same profession, but abandoned it for the natural sciences, receiving employment in the geological survey of Bohemia in 1852. He was geologist on the Novara expedition, and, after his return in 1860, Professor of Mineralogy and Geology in the Vienna Polytechnic School. In 1881 he took charge of the Royal Museum of Natural History. His explorations in eastern Europe, and his discoveries of prehistoric remains, are described in a series of works, some of which have been translated into English.

Horne, Richard Hengist, an English author, born in London, in 1803; died March 13, 1884. He was educated at the military college of Sandhurst, and served as an officer in the Mexican navy till the close of the War of Independence. He traveled in the United States, visiting many of the Indian tribes, and had two ribs broken by an accident under Niagara. He was wrecked in the Gulf of St. Lawrence, and afterward sailed on a ship that suffered from mutiny and fire. On his return to England, he devoted himself to literature. His most celebrated work was "Orion" (1843), an epic poem; of this he published three editions, at the price of one farthing, partly as a satire on the low estimation in which poetry was held. It has since gone through ten editions. In 1852 he went to Australia with William Howitt, where he held several offices, such as Commissioner of Gold Fields, and Mining Registrar. He was the champion swimmer of Australia, and won several prizes in swimming contests there. On one of these occasions he was bound hand and foot. He also surpassed in athletic games. He founded the Melbourne Garrick Club, and established there a large company for the manufacture of wine. In 1870 he returned to England. His published works, which are very numerous, include "The Adventures of a London Doll," "The Good-natured Bear," "An Exposition of the False Medium, and Barriers excluding

Men of Genius from the Public," "Gregory VII," a tragedy; "A New Spirit of the Age," "Spirit of Peers and People," "Ballads and Romances," "Judas Iscariot," a miracle-play; "The Dreamer and the Worker," "Prometheus, the Fire-Bringer," a lyrical drama; "John the Baptist, or the Valor of the Soul," and "The Apocryphal Book of Job's Wife." He was also a voluminous writer for periodicals. In 1831 he competed for the prize offered by the Spanish Academy for a poem on Calderon. Through some technical defect, the prize was not awarded, but the medal struck in Madrid was presented to him.

Hullah, John, an English musician, born in Worcester, in 1812; died in February, 1884. At the age of twenty he became a student at the Royal Academy of Music, and he also studied the art of singing under Horsley and Crivelli. In 1836 he brought out in London an opera entitled "The Village Coquettes," of which Charles Dickens wrote the libretto, and within the next two years he produced "The Barber of Bassora" and "The Outpost." In 1840 he undertook the task of improving and extending the method of teaching singing in large classes, and developed a plan that is now identified with his name. It was popular from the beginning, the classes were very large, and in 1847 St. Martin's Hall, Long-Acre, London, was built for him. This was burned down in 1860, but he continued his series of concerts, in which some celebrated singers made their *début*. It is estimated that he taught vocal music to about 25,000 persons in twenty years. He was Professor of Vocal Music in King's College, Queen's College, and Bedford College, London, between 1844 and 1874, and from 1872 to 1882 was inspector of music in training colleges in England and Scotland. In 1876 the University of Edinburgh made him LL. D. His publications include "A Grammar of Harmony," "A Grammar of Counterpoint," "History of Modern Music," and "The Transition Period of Musical History," besides essays.

Jerrold, William Blanchard, an English author, born in London, in 1826; died there, March 10, 1884. He was the eldest son of Douglas Jerrold. He was educated partly in France, studied art, and illustrated some of his father's articles. When the London "Daily News" was founded, in 1846, he was one of the staff of editors, and wrote for it a series entitled "The Literature of the Poor." He also wrote much for his father's weekly paper, and in 1857 succeeded him as the editor of "Lloyd's." In 1863 he visited Paris to study the management of the poor, and in 1869 visited Holland for a similar purpose. In 1879 he presided over the Congress of the International Literary Association in London. His numerous works include "The Disgrace of the Family," "The Progress of a Bill," "As Cool as a Cucumber," a farce, "The Chatterbox," a comedy, "Swedish Sketches," "Imperial Paris," "The Chronicles of a Crutch," "Two Lives," "Up and Down in the World," "On the Boulevards," "The Christian Vagabond," and lives of Douglas Jerrold, George Cruikshank, and Napoleon III.

Klinkerfüss, Wilhelm, a German astronomer, born in Hofgeismar, March 29, 1827; died by his own hand in Göttingen, Jan. 20, 1884. After leaving the Polytechnic School at Cassel, he was employed as a surveyor until he took up the study of astronomy at Göttingen under Gauss, whom he succeeded as director of the observatory. He wrote "Theoretical Astronomy" and many other works on this subject and on meteorology, in which he was equally an authority. He invented a hygrometer, and was the organizer of the system of daily meteorological observations in Germany, though the imperfect indications of the hygrometer for predicting the approach of rain brought the system into disrepute.

Lacroix, Paul, known as "Bibliophile Jacob," a French author, born in Paris in 1807; died in October, 1884. He wrote a series of fictitious memoirs of historical personages, followed by a history of the sixteenth century, in 1835, and histories of French society in the seventeenth and eighteenth centuries and under the Directory, and a great number of other writings of antiquarian interest.

Laube, Heinrich, a German political author and dramatist, born in Spottau, in Silesia, Sept. 18, 1806; died in Vienna, Aug. 1, 1884. He went to Halle a poor theological student, where he was carried away with the political ideas of the time and with the pleasures of student-life. He was sent away to Breslau on account of his suspected connection with the students' societies, and soon joined the band of political enthusiasts in Leipsic, and became a journalist of note and a daring advocate of the new ideas. Banished from Saxony in 1834, he rashly went to Berlin, where he was kept nine months in jail, then subjected to a long examination, during which he was placed under police surveillance at Naumburg, and finally sentenced to a year's imprisonment. Influential friends obtained a relaxation of the sentence, which enabled him to serve out the term pleasantly with his wife, whom he married in 1837, on the estate of Count Pückler at Muskau. Laube was the last survivor of the group of political reformers known as Young Germany, of which he was the boldest and the most radical representative. He published two volumes of political essays, entitled "The New Century," in 1832 and 1833, and in the next four years his novel of "Young Europe," besides many shorter tales. The success of his "Karlschüler" in 1848 led to his appointment the following year as director of the Vienna Court Theatre. In 1848 he was elected to the Frankfort Parliament from a Bohemian town, but soon resigned. The political situation is described in his book on "The First German Parliament." Among his most successful plays are "Struensee," "Graf Essex," "Cato von Eisen," "Montrose," and "Viel Feind' viel Ehr." As a theatrical manager he displayed executive energy, fine discernment, invention, and enterprise. He left the Royal Theatre in 1867 to found a new theatre with liberal tendencies and aims. The handsome Stadttheater which he built was destroyed by the tragic fire in which many Vienna people lost their lives.

Leopold, George Duncan Albert, Prince, Duke of Albany, youngest son of Queen Victoria of England, born April 7, 1853; died in Cannes, March 27, 1884. He was weak from his birth, and incapable of vigorous physical exercise or intense application to study, yet he possessed an active mind, a lively fancy, a remarkable memory, and a strong love of knowledge. With these qualities he acquired from men and books a large fund of information, a special acquaintance with history, and an easy familiarity with modern languages. His early education was conducted in German as much as in English. As a student at Oxford and in his residence at Boyton Manor, and later at Claremont Castle, he was agreeable and hospitable. He traveled much on the Continent, and (the year before he was called to the House of Lords as Duke of Albany, Earl of Clarence, and Baron Wicklow) in Canada and the United States. He often presided at the laying of corner-stones and the opening of schools, hospitals, and other charitable institutions, and hoped to be active like his father in the encouragement of art, education, and social reform. He wished in his last years to play a political *rôle* as Canadian Viceroy or Governor of Victoria, but the objections of the Government and the anxiety of his mother for his health obliged him to give up such hopes. He married, April 27, 1882, Princess Helen of Waldeck. He was ordered to Cannes by his physician in March, 1884, where, entering too eagerly into the social pleasures of the place, he died of a stroke of apoplexy.

Lepage, Bastien, a French painter, born in Damvilliers, Nov. 1, 1848; died Dec. 10, 1884. He entered the public service, but left it to devote himself to art. He was a pupil of Cabanel, and began exhibiting in 1871 the rustic scenes for which he became famous. Among his works are "In the Spring," exhibited in 1873, "The Song of Spring," "Portrait of my Grandfather," and many life-like portraits in the impressionist manner.

Lepsius, Karl Richard, a German Egyptologist, born in Naumburg, Dec. 23, 1810; died in Berlin, July 10, 1884. He became absorbed in Egyptian studies at the Berlin University, and in 1842 was appointed to conduct a scientific expedition to Egypt, where he was engaged in deciphering inscriptions and collecting art-remains for the Berlin Museum until 1846. After his return he became a professor in the Berlin University and Director of the Egyptian Museum, which he founded. No scholar has done more than Lepsius for the reconstruction of the Egyptian language.

Maria Anna, Empress of Austria, born Sept. 19, 1803; died May 5, 1884. She was the daughter of King Victor Emanuel I of Sardinia, and the last descendant of the elder line of the house of Savoy. Her marriage to the Archduke Ferdinand took place in Vienna, Feb. 27, 1831. He succeeded to the throne March 2, 1835. After his abdication, Dec. 2, 1848, they took up their residence in Prague, where the ex-Emperor died June 29, 1875. The Empress Maria Anna was a devout Catholic, of an earnest and retiring disposition, and a rigid observer of etiquette. On account of her less congenial nature, her ignorance of the German language, and the fact that she was childless, she possessed less influence at court than the Archduchess Sophie, the mother of the present Emperor. Metternich arranged her marriage with the Crown Prince, in the delusive hope of strengthening the hold of the Hapsburgs on their Italian possessions. In her retirement the ex-Empress devoted herself to works of charity, and especially to encouraging in Bohemia female orders for the care of the sick and the education of girls.

Markevitch, Boleslas, a Russian novelist, born in 1825; died in St. Petersburg, Nov. 30, 1884. He was at first a writer of reviews and of society verses, and published in the last ten years of his life a series of powerful novels dealing with the political conditions of Russian society in the successive periods since the reign of Nicholas, written in an easy style, after French models, and liberal but not revolutionary in tendency. They are entitled "A Forgotten Question," "A Quarter of a Century ago," "The Crisis." "The Abyss," portraying the rise of Nihilism, was left unfinished.

Midhat Pasha, a Turkish statesman, born in Constantinople in 1822; died in the autumn of 1884. He was the son of a civil judge. After serving as secretary to a commission for ameliorating the Konieh district in 1845, he was appointed director of confidential reports. He was dispatched to the Asiatic provinces to investigate the collection of taxes, but was recalled to suppress brigandage in Roumelia, which he did with an iron hand. He was then appointed to the Supreme Council, and was made Governor of Bulgaria. Visiting European capitals to study constitutional forms, he introduced reforms in various districts, and in 1860 induced the Sultan to extend them to the whole empire. He was appointed Governor of the Vilayet of the Danube in 1864, and constructed public works, and hoped to reconcile the Bulgarians to Turkish rule. In 1866 he was recalled to preside over the Council of State. Sent to suppress a revolt in Bulgaria and then to quell a disturbance at Bagdad, he succeeded by resolute and severe means. Returning to Constantinople, he warned Abdul Aziz of an attempt to change the succession. Mahmoud Nedim and his colleagues were dismissed, and Midhat was appointed Grand Vizier. But he was soon disgraced. He was appointed Grand Vizier again when the present Sultan came to the throne, and inaugurated the Ottoman Parliament. Suddenly he was arrested with several others, tried for the murder of the Sultan Abdul Aziz, convicted, and condemned to banishment.

Mignet, François, a French historian, born in Aix, in 1796; died in Paris, March 24, 1884. He was a precocious student, and soon after he was called to the bar, in 1818, won a prize of the Académie des Inscriptions for an historical essay. With his friend Thiers, he entered on a journalistic career in Paris. They each set to work about the same time on a history of the French Revolution. Mignet's appeared in 1824, and at once attained a striking success, but brought upon its author the enmity of the Bourbons. It was the first successful vindication of the Revolution, and, as Guizot said, brought the dead to life again to contend against the restoration in conjunction with the Liberals of the new generation. He attacked them again under the veil of historic parallels in public lectures, until the hall was closed by ministerial order. After the Revolution of 1830, Mignet conducted a delicate diplomatic mission in Spain, receiving as the reward free access to all the state archives in Madrid. This enabled him to write the "Negotiations relative to the Spanish Succession," which contained the history of Louis XIV's reign. An admirable epitome of the work was published in his "Historical Memoirs," the other essays describing the conversion of the Germans to Christianity, the development of the French monarchy, and the establishment of Calvinism in Geneva. His "History of Antonio Perez" has the fascination of a novel. He was engaged in his "History of Mary Stuart" when the Revolution of 1848 occurred and when he lost his post of Archivist of the State Department, the only reward he would accept for his services in bringing about the July revolution. His dismissal was an act of petty resentment on the part of Lamartine. In 1854 appeared the "History of Charles V's Abdication, his Sojourn and Death at the Monastery of St. Yuste." His last published work of importance was the "Rivalry of Francis I and Charles V" (1875). About 1830 he began a great work on the "History of the Reformation," to which he gave all his attention in the last years of his life, leaving it in manuscript still unfinished. Mignet's style in his earlier works was lucid, vigorous, melodious, and highly finished, in his later ones somewhat dry and careless. Engrossed in study, he shunned society, neglected his opportunities to take a part in politics, and cared little for popularity. His comradeship with Thiers was kept up until his friend died. As an historian he was fond of generalization, and took a sweeping view of the development of civilization, which caused him to depreciate the results of practical political combinations—the Third Republic as well as the Third Empire. Mignet was elected to the French Academy in 1836, and was the oldest member when he died.

Mohammed Sultan Pasha, President of the Egyptian Parliament, died in Grätz, Aug. 18, 1884. He was a fellah, and acquired a large landed estate. He first became prominent when he led the opposition of the Notables to Mahmoud Sami and Arabi Pasha in 1882. He died suddenly while returning from a trip to Europe.

Moigno, Abbé François Napoléon Marie, a French mathematician, born in Guémené-sur-Scorf (Morbihan), April 15, 1804; died at St. Denis, July 13, 1884. He studied at the College of Pontivy and under the Jesuits at Ste. Anne d'Auray. His remarkable talents and great ability as a mathematician were early developed; but, pleased by the austere and laborious life of the Jesuits, he applied for admission to the order, and in 1822 began his theological studies at the seminary of Montrouge. Six years later, after a brilliant examination, he received the degree of Doctor of Theology, and was assigned to the professorship of Philosophy and Theology. During the following years he was able to gratify his early fondness for the exact sciences, and studied under the most eminent teachers. His religious duties, however, were not neglected, as many brilliant discourses delivered at different seasons and in various churches testify. In 1836 he was called to fill the chair of Mathematics at the Jesuit College (Rue des Postes) in Paris, and soon afterward, a normal school having been established for the clergy, mathematics and physical sciences were placed under his direction. During this period he published his "Leçons de Calcul différentiel et intégral," "Le Calcul des Variations," "La Mécanique analytique," and "Le Répertoire d'Optique Moderne." His work, although of such character as to win the respect of the scientific world, failed to secure the approbation of his ecclesiastical superiors, and in 1848 he withdrew from the order of Jesuits. Days of want followed, and his only means of support were the few scientific articles that he wrote from his little apartment in the Quartier Latin. In 1845 Émile de Girardin, having recently established "L'Époque," commissioned Moigno to prepare a series of scientific articles for that journal, and in consequence he traveled throughout Europe, meeting at the different capitals the most prominent scientists of his time. Returning to Paris, he published the "Traité de la Télégraphie électrique," the first work of this kind to appear in France, and one that for a long time remained the standard authority on the subject. Several years of religious difficulty followed, during which, for short periods only, was he allowed to hold positions in the Church. His writings continued, however, and he was connected with various short-lived scientific publications. In 1852 M. de Monfort founded a weekly scientific journal entitled "Cosmos," the editorship of which was at once intrusted to Moigno, and this post he continued to occupy until a short time before his death, with the exception of some time between 1862 and 1871. During this period he edited "Les Mondes," and in 1871 the two journals were united under the title "Cosmos les Mondes." More than one hundred volumes on scientific subjects are credited to him, besides the twenty-one volumes of the "Cosmos" and fifty-eight of "Les Mondes." Among his works, in addition to those mentioned, are "Mémoirs sur le Stéréoscope et le Saccharimètre"; "Les Éclairages modernes"; "Les Agents explosifs," and excellent translations of Tyndall's works on the sun, on light, and on heat. He edited and published a series of works called "Actualités Scientifiques," several of which, such as "La Mnemotechnie," were written by himself. His most important publication was "Les Splendeurs de la Foi" (5 vols., 8vo, 1879). This was supplemented by "Les Splendeurs de la Foi, illustrées." The French Government in 1872 appointed him Canon to the Chapter of St. Denis, and during the same year he was again received into the order of Jesuits. He held many honors, and was widely known as well as universally respected. An elaborate biographical sketch of him appeared in "Cosmos les Mondes" of July 19, 1884.

Moreno, Juan Ignace, Cardinal, Archbishop of Toledo, born in Guatemala in 1817; died in 1884. He was educated in Spain for a Franciscan monk, but, after the expropriation of the monasteries in 1839, entered the regular priesthood in 1842. He returned to Spain from Cuba and South America, where he had labored as a missionary, and was appointed royal chaplain and confessor to Queen Isabella, became Bishop of Valladolid in 1863, and received a cardinal's hat in 1868. When the primacy became vacant, he succeeded to it.

Nerses, Armenian Patriarch, born in 1834; died in Constantinople, Nov. 8, 1884. He was educated for the priesthood in Adrianople, was made Bishop of Sis for his services in allaying the revolt in Zeitoun, was commissioner of the Turkish Armenians at the election of the Catholicos George IV, and was chosen Patriarch of Constantinople in 1874. He struggled for the emancipation of the Armenian peasants in Anatolia from their Kurdish landlords. His conflict with the Kurds and with tyrannical pashas brought him frequently into collision with the Porte, which failed to recognize his services in keeping the Armenian nation from embracing the cause of Russia in the Russo-Turkish War. Elected Catholicos of Etshmiadzin in 1884, he made his acceptance conditional on the abolition of the Russian statute that places Turkish Armenians at a disadvantage. During his conflicts with the Porte he often offered his resignation. Shortly before his death, he resigned in earnest, on account of the abrogation of the autonomous privileges of the Armenians.

Pahlen, Count **Nicholas**, born in Revel, Russia, in April, 1788; died in Cannes, Dec. 6, 1884. He was a son of Gen. Count Pahlen, who was the leader of the conspiracy against the Emperor Paul. On the completion of his course at the university, he in 1810 accompanied his elder brother, the Russian minister, to the United States. He visited Jefferson at Monticello and John Adams at Quincy, and was well acquainted with Madison and all the members of his Cabinet. For seventy years he resided in the various capitals of Europe, and knew intimately many of the most eminent men of the century. He was a person of fortune, who never held any office, but was believed to be one of the many secret agents employed by his Government. This venerable man always enjoyed good health, and at length passed away without any other malady than old age.

Pattison, Mark, an English scholar and author, born in Hornby, Yorkshire, in 1813; died July 30, 1884. He was graduated at Oriel College, Oxford, in 1836. In 1840 he was elected Fellow of Lincoln College, Oxford, and took deacon's orders. In 1861 he became rector of his college, and trustee of the Crewe Charities. He was classical examiner of the university in 1848 and 1853, and assistant commissioner to inquire into elementary education in Germany. His later years were devoted purely to literary and philosophical writing. Among his works are: "Tendencies of Religious Thought in England, 1688–1750" (1860); "Annotations on Pope's Essay on Man" (1869); "Annotations on Pope's Satires and Epistles" (1872); "Life of Isaac Casaubon" (1875); "Life of Milton" (1880); "Milton's Sonnets, with Notes" (1882). His "Life and Letters" are announced for publication in 1885. His wife, Emilia Frances Strong, was a daughter of Col. Strong of the Madras army. She was art-critic for the "Academy," and in 1879 published "The Renaissance of Art in France" (2 vols.), illustrated by herself.

Pogge, Dr. Paul, a German explorer; died in St. Paul de Loanda, March 17, 1884. His travels in the Loanda country in 1875 gave him a reputation. In 1881 he returned with Lieut. Wissmann to explore the Congo region from Loanda. They penetrated to Nyangwé after exploring Lake Lincoln, and then Pogge returned and spent some time in the Lulua and Cassai regions, while Wissmann crossed the continent.

Prati, Giovanni, an Italian poet, born in the Italian Tyrol, Jan. 27, 1815; died in Rome, May 9, 1884. He studied in Trent and in Padua, where he published his first poems, which at once captivated Italy with their lyric movement and harmonious style. His inspiration gradually deserted him, partly in consequence of his hard treatment at the hands of the Republicans of Venice and Florence in 1848. For his attachment to the Savoy dynasty they maligned and abused him, threw him into prison, and finally sent him into exile. The old fire and grace marked the productions of his last period, when he was honored as the laureate of the monarchy and sang the praises of the popular King and of the authors of Italian unity. Aside from his political poems, Prati presented an idealization of human nature in his "Edmenegarda," "Armando," and other creations.

Richter, Adrian Ludwig, a German artist, born in Dresden, Sept. 28, 1803; died June 19, 1884. He learned drawing and engraving from his father, and studied art in Rome. For forty years he was a landscape-painter and professor of that branch in the Dresden Art Academy. He was commissioned by the publisher Wigand to illustrate a series of the German legendary tales, and devoted himself from that time to figure-drawing, and became the most successful illustrator in Germany. His sketches of the homely life of the people were even more popular than his illustrations of the German classics. Ludwig Richter drew in few and strong lines, like Albert Dürer, and revived that master's style of wood-engraving, giving the impulse to Hugo Bürckner and his school.

Rogers Bey, an English Orientalist and an official of the Egyptian Government, born in 1831; died in Cairo, June 10, 1884. After serving as British consul in Damascus and Cairo, he became the Khedive's representative in London, and subsequently Under-Minister of Education, Inspector of Prisons, and Director of the Sales of Public Lands. He published monographs on Egyptian heraldry and Arabic coins, and was the leading member of the commission for the preservation of monuments in Cairo.

Romang, Johann Jakob, a Swiss poet, born in Gsteig, in 1830; died in September, 1884. He was educated for the law, and then for the military profession, received a commission in the Federal army, served in the Crimean War in the Foreign Legion raised by Great Britain, and on his return tried law, journalism, and literature by turns. He published "Ost und West," his first collection of poems, in 1851, afterward five volumes of novels and legends under the name of "Bergcrystalle," and in 1882 his poem called "Herbstblumen." His poems are full of patriotic enthusiasm for the Swiss mountains, and contain graphic descriptions of nature and touches of human feeling.

Rouher, Eugène, ex-minister of Napoleon III, born in Riom, Nov. 30, 1814; died Feb. 3, 1884. He entered the naval school at Angoulême in 1828, subsequently studied law, defended a Liberal editor, and was a candidate under Guizot's auspices for the Chamber in 1846. He was elected in 1848 as an enthusiastic Republican to the Constituent Assembly, and a year later to the Legislative Assembly. He supported Cavaignac, and then became a confidant of Louis Napoleon, who chose him as chief of Cabinet when he broke with the Dufaure-Barrot ministry of the parliamentary majority in October, 1849. Until the fall of the empire, Rouher almost uninterruptedly remained minister. He resigned the portfolio of Justice Jan. 24, 1851, and after the *coup d'état* received it again December 2. The confiscation of the estates of the Orleans princes led him to resign, but he returned as Minister of Finance in 1855. In 1860 he concluded the famous treaty of commerce with England. From 1863 he took the first part in the Government, and was dubbed the "Vice-Emperor." Against Favre, Berryer, and Thiers he had to defend the policy of the Government in the Mexican, Schleswig-Holstein, and Roman complications. When the Opposition returned in greater force after the election of 1869, Napoleon dismissed the Rouher ministry, July 13. In 1871 Rouher was elected to the National Assembly from Corsica, and took the lead of the Bonapartists, with a cry for a *plébiscite*. He was elected later from Riom, and remained the leader of the party and the adviser of the ex-Empress until the death of the Prince Imperial.

Schmidt, J. F. Julius, a German astronomer, born in Eutin, Oct. 26, 1825; died in Athens, Feb. 7, 1884. He was attracted to the subject of astronomy in childhood, and passed his whole life in observatories. For thirty-five years he labored on a map of the moon. His observations of shooting-stars, the zodiacal light, and variable stars were valuable; also his studies in seismology and of the volcanoes of the south of Europe. He was for many years director of the observatory at Athens.

Sella, Quintino, an Italian statesman, born in Biella, July 7, 1827; died there, March 14, 1884. He studied in the Turin University and in the Paris School of Mines, and, after traveling abroad for several years, settled as a teacher in the Mining Academy at Turin. In 1861 De Sanctis, Minister of Instruction in the first Cavour Cabinet, made him his secretary-general. From March 3 to Dec. 8, 1862, Sella held the portfolio of Finance in the Ratazzi ministry, and also under La Marmora from Sept. 28, 1864, to Dec. 31, 1865. He was again Minister of Finance from Dec. 14, 1869, to July 10, 1873, in the Lanza Cabinet, of which he was the intellectual head. After the withdrawal of the French troops from Rome, the Left called upon the Government to take possession of the Papal dominions. The ministers refused, whereupon the Liberal leaders prepared a proclamation calling for popular action. Sella persuaded them to wait, and finally overcame the scruples of his colleagues. After the battle of Sedan the Italian troops occupied Rome, and the temporal sovereignty of the Pope was extinguished in the ancient capital. Sella was not less distinguished in science, especially in geology, than as a statesman.

Smith, Robert Angus, an English chemist, born near Glasgow, in 1817; died at Colwyn Bay, May 11, 1884. Dr. Smith was educated at the grammar-school and at the University of Glasgow. His early fondness was for classical study, and on leaving the university he became a tutor. In 1839 he left England, and studied chemistry under Liebig at the University of Giessen. Hofmann, Will, and Fresenius, names that are now foremost in the chemical world, were at that time assistants in the laboratory. After two years spent in study and research at the German university, Smith returned to England in 1841. Shortly afterward he became assistant to Dr. Lyon Playfair, who had preceded him at Giessen, and who was at this time engaged in a sanitary commission. This occupation proved to be the starting-point of those researches in sanitary science for which Dr. Smith subsequently became so celebrated. His first paper was published in the "Journal of the Chemical Society," in 1846. Two years later, at the meeting of the British Association at Swansea, he read an important paper "On the Air and Water of Towns." Soon after this, two memoirs, one "On the Air of Towns," and the other "On the Air and Rain of Manchester," were published, both of which were of great sanitary value, as they called attention to subjects that thus far had been almost entirely neglected. His reputation as an authority on sanitary matters having become fully established, numerous papers, on such subjects as "Sewage and Sewage Rivers," "Disinfectants," "Putrefaction in Food," etc., were contributed by him to the "Journal of the Chemical Society," the "Journal of the Society of Arts," and the "Journal of the Philosophical Society of Manchester." In 1854 he published a valuable "History of the Atomic Theory, and Memoir of Dalton," a work of very great value at that time. In 1863 he was appointed Inspector-General of the Alkali-Works. His annual reports, many of which contain special papers written by himself, are highly valued. His "Report on the Air of Mines and Confined Places" (1864) was an important contribution to sanitary science, and contained many valuable facts relating to ventilation. Among his larger works are "Disinfectants and Disinfection" (1869), "Air and Rain" (1872), "Chemical and Physical Researches of Graham" (1876), and "A Centenary of Science in Manchester" (1883). Several essays and works of antiquarian interest were published by him; one of the last being a volume entitled "Loch Etive and the Sons of Uisnach," which appeared anonymously. Dr. Smith was elected a Fellow of the Royal Society in 1857; he was a corresponding member of the Royal Bavarian Academy, and Vice-President of the London Chemical Society, of the Literary and Philosophical Society of Manchester, and of the Institute of Chemistry. He assisted in the Jury of the International Exhibition at London in 1862, and of the French Exposition held at Paris in 1878.

Somerset, Jane Georgiana, Duchess of, the youngest of the three beautiful daughters of Thomas Sheridan, the son of the orator and dramatist Richard Brinsley Sheridan, born in London, March 10, 1810; died there, Dec. 14, 1884. She married, June 10, 1830, Edward Adolphus, Lord Seymour, who succeeded his father as the thirteenth Duke of Somerset, Aug. 18, 1855. Lady Seymour presided as the Queen of Beauty at the famous Eglinton Tournament. The issue of the marriage consisted of two sons and three daughters. The eldest son died unmarried, and the second son was accidentally killed in 1865. The Duchess's sisters were Lady Dufferin, mother of the present Governor-General of India, and Mrs. Caroline Norton, the poetess, whose second husband was Sir William Stirling Maxwell. The Duchess was a lady of many accomplishments, and the friend of Thomas Moore, Lord Macaulay, and other eminent men of letters.

Stang, Fredrik, a Norwegian statesman, born in 1812; died June 10, 1884. He was the leader of the Conservative party, and took a chief part in the constitutional struggle that ended in the impeachment and dismissal of the late Cabinet. After taking his degree at the University of Christiania, he became a Professor of Civil Law, and won distinction at the bar. He was appointed a Councilor of State in 1845, and remained in office, most of the time at the head of the Government, until 1880.

Strousberg, Bethel Henry, a German financier, died May 31, 1884. After a long experience in England and the United States, as merchant, journalist, and lawyer, he returned to Berlin in 1855 as agent for an English insurance company, and legal adviser to the British embassy. In 1861 he obtained the contract for the construction of a railroad, as agent for an English company. He soon obtained capital and credit enough to take contracts to build the Prussian railroads on his own account, and then Hungarian, Austrian, Roumanian, and Russian railroads. He bought mines, furnaces, and locomotive-works, built up towns for his laborers in Germany, Holland, and Bohemia, and became the largest employer in the world. He locked up an enormous capital, not only in his mines and industrial establishments, but in the purchase and improvement of numerous estates, in buildings in Berlin, particularly the new cattle-market, and in restoring the old royal castle, and improving the mines and forests at Zbirow in Bohemia. The loss of 20,000,000 florins in the Austrian railroads, the stoppage of his business in consequence of the war of 1870, the expropriation of the Roumanian railroads, and the settlement for 6,000,000 thalers, the depression of 1873, and the competition of rival establishments after 1875, left him irretrievably bankrupt. He was arrested in Moscow, and sentenced to transportation for swindling, but obtained his liberty again the following year, and returned to Berlin, where he published an autobiography. He also published a newspaper, and at the time of his death was writing a work on political and literary subjects.

Sullivan, Alexander Martin, an Irish politician, born in Castletown in 1830; died at Dartry in August, 1884. He was of peasant birth, and attended only the elementary schools. He was an etcher and wood-engraver in Dublin, and then a contributor to the "Nation" newspaper, of which, in 1855, he became editor and proprietor, after the retirement of Sir Charles Gavan Duffy, in consequence of the troubles of 1848. In 1876 he removed to London to practice law and engage in literary pursuits. He was an eloquent and impassioned speaker, as well as a vigorous writer; ardent in his convictions and fearless in their expression; suffering imprisonment for his advocacy of the nationalist cause, yet bringing upon himself the hostility and suspicions of the Irish revolutionists. He sat in Parliament from 1874 to 1832, when he retired from active political life. In 1857 he traveled in America, and published "A Visit to the Valley of Wyoming." In 1868 he was convicted of sedition, and imprisoned. He published "New Ireland," a series of political sketches, in 1877.

Taglioni, Maria, Countess de Voisins, a dancer, born in Stockholm, Sweden, March 18, 1804; died in Marseilles, France, April 24, 1884. She was the daughter of Philip Taglioni, an Italian ballet-master, and made her *début* at Cassel when she was nine years old. When, in 1818, she first appeared as *première danseuse* at Vienna, her style was quite new, and afterward, in Paris, it was known as the "Ideal," in opposition to the old-fashioned sensuous style taught by Gardel and Vestris, and known as the "Realistic." Her father taught her decorousness of gesture and expression. "Not a look or movement of hers," he said, "should fail in modesty. Mothers shall bring their young daughters to see her without being shocked." In the exquisite, airy style of her performance, dancing might truly be said to be "the poetry of motion." She appeared in all the capitals of Europe, winning fame and fortune. On her marriage, in 1847, to Count Gilbert de Voisins, she left the stage. "You are the real queens," said the Duchess de Berry; "you have no insurrection to fear, and no exile." Taglioni spoke of ill health and old age as things that the artist had to dread. "No doubt," said the Duchess, "health and youth do not last forever; but by the time they go you will have your diamonds and your châteaux; you will be rich." The dancer, like so many other stars, was improvident, and her wealth disappeared, and, like her compatriot and friend Mario, she ended her days in poverty and obscurity.

Tissot, Charles Joseph, a French diplomatist, born in Paris, Aug. 29, 1828; died there, in 1884. He was educated for the diplomatic service, and was consul at various cities in Turkey, and then secretary of the embassy in London. Remaining in the service under the republic, he was appointed minister to Tangier in 1871, to Athens in 1876, ambassador to the Porte in 1878, where he displeased the Roman Catholics of the East, and to London in 1881, where he proved unacceptable to the English Government. M. Tissot, during his residence in the East, pursued archæological researches, and wrote many essays on ancient geography and architecture.

Ulrici, Hermann, a German philosopher and critic, born March 23, 1806; died Jan. 14, 1884. He studied law, but turned to the more congenial pursuit of literature, writing on the ancient historians and Greek poetry, and then a philosophical analysis of Shakespeare's plays. In the first edition (1839) he attributed to the dramatist a deep religious and ethical purpose; in the last (1868) it was as a microcosm of human life and passion that the poet's dramas were conceived, each one being given its due place in a cycle covering the whole range of human feeling. In all his writings on literature and art, Shakespeare was glorified as the inspired poet of humanity. Ulrici published a critique on Hegel's philosophy in 1841, a comprehensive work on the fundamental principle of philosophy in 1845 and 1846, a "System of Logic," a work entitled "Faith and Knowledge" in 1858, and subsequently "God and Nature" and "God and Man." The aim of his philosophical studies was to establish an idealistic and theological basis for positive science. In 1876 he published a collection of essays on the history of art. Ulrici was called from Berlin to Halle as an extraordinary professor in 1834, and thirty years later was appointed Professor of Philosophy and Art History.

Vara, Giovanni Battista, an Italian statesman, born in Venice, in 1817; died April 20, 1884. He labored with Daniel Manin in preparing the revolution at Venice in 1848, and, after the downfall of the Venetian Government, continued the agitation against Austria from Switzerland, until he was expelled in 1851. Returning later to Piedmont, he practiced law. On the liberation of the Venetian provinces in 1866, he was elected to Parliament. In July, 1879, he was appointed Minister of Grace and Justice in the second Cairoli ministry.

Watts, Henry, an English chemist, born in London, Jan. 20, 1815; died there June 30, 1884. He was educated first at a private school in London, where he received excellent elementary instruction in physics and chemistry, a circumstance unusual at that time. He became a teacher, and attended lectures at University College, London, and in 1841 was graduated as Bachelor of Arts. In 1846 he entered the Birkbeck Laboratory of Chemistry, then recently established at University College, as assistant to the late Prof. Fownes, and in that capacity directed the work of the students. He was unable to obtain a professorship, on account of his being incapacitated for lecturing by an incurable impediment in his speech, and for this reason he was ultimately induced to devote himself entirely to the literature of chemistry. In 1848 he was engaged by the Cavendish Society to prepare a translation, with additions, of the great "Handbuch der Chemie" of Leopold Gmelin, a work that extended to eighteen volumes, and occupied a portion of his time for twenty years. The first volume appeared in 1849, while the last, with the index, was not published until 1872. In 1858 Mr. Watts was engaged to prepare a new edition of Ure's "Dictionary of Chemistry and Mineralogy," but finding that this book, the last edition of which appeared in 1831, had fallen too much behind the existing state of chemistry to be made the groundwork of a dictionary adapted to the requirements of the time, he undertook, with the consent of the publishers and the assistance of a staff of contributors, the compilation of a new "Dictionary of Chemistry and the Allied Branches of other Sciences." This work (5 vols. 8vo) was completed in 1868; but as additions were required to keep it abreast of the continual advances of science, a supplementary volume was published in 1872, a second supplement in 1875, and a third (in two parts) in 1879 and 1881. At the time of his death he was preparing a new and abridged edition of this work. Mr. Watts also edited and largely added to the second volume of the late Prof. Graham's "Elements of Chemistry" (1858). Three editions of Fownes's "Manual of Chemistry" were edited and revised by him, the tenth published in 1868, the eleventh in 1872, and the twelfth in 1877. A thirteenth edition was also prepared by him, the first volume of which had appeared at the time of his death, while he left the second in manuscript. He was co-editor with Dr. Richardson of the "Richardson and Watts Chemical Technology" (5 vols. 8vo), and a new edition of this work was being prepared under his supervision. He was appointed editor of the "Journal of the Chemical Society" (London) in 1850, and was made librarian to the same organization in 1861. He was elected a Fellow of the Chemical Society in 1847, a Fellow of the Royal Society in 1866, and a member of the Physical Society in 1879.

Wellington, Arthur Richard, second Duke of, born in London, Feb. 2, 1807; died in Brighton, Aug. 13, 1884. He was the eldest son of the great soldier. With his younger brother, Lord Charles Wellesley, he was educated at Eton. For some not very serious scrape, in which the young Marquis and his brother became involved, the old Duke advised a sound flogging, adding, in his letter to the master, "and I will ride over and see that it is properly administered," which he did. From Eton Lord Douro went to Trinity College, Cambridge, and in 1828 he entered the rifle brigade. In 1834 he became colonel. From 1842 to 1852 he was aide-de-camp to his father, then commander-in-chief of the British army, and in 1862 he was appointed lieutenant-general. For some time before this the Duke, who succeeded to the title in 1852, had been known as one of the most active advocates of the volunteer movement, and was lieutenant-colonel of the Victoria Rifles. He was for a time a member of the House of Commons, but never took part in debate, and was Master of the Horse under the late Lord Derby. Much of his time during the last two decades of his long life was devoted to editing the voluminous dispatches, correspondence, and public speeches of his father (33 vols. 8vo). Not one of the 19,000 pages passed into the printer's hands till he had read it, and in the correction of the proofs he took the utmost pains. His model index to the work is a volume of 582 pages. He also illustrated his devotion to the Iron Duke's memory by erecting on the estate of Strathfieldsaye, near Reading, a lofty column of polished gray granite, nearly one hundred feet high, surmounted by a noble marble statue of Wellington by Marochetti. On the grave of his father's favorite charger he placed in 1880 a fine monument, with this inscription from his own pen:

> Here lies Copenhagen, the horse ridden by the Duke of Wellington the entire day of the battle of Waterloo.
> Born 1808, died 1828.
> God's instrument, though meaner clay,
> Should share the glories of that glorious day.

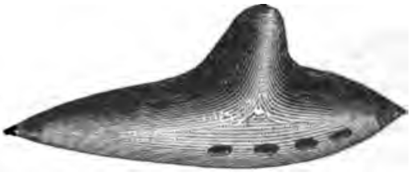
The second Duke was an accomplished scholar, and in his advanced years, when his hearing became dull and his eyesight all but extinguished, he amused his leisure hours at Strathfieldsaye by translations from Horace and from the poetry of Germany and France, and also by the composition of graceful sonnets. When urged by a friend to gather his poems together for publication, he declined, saying, "There is something contemptible about a sonneteering duke." His memory was extraordinary, and held unfailingly to every event in any way connected with English history during the nineteenth century. As a conversationalist, the Duke had few superiors, combining with his charming talk good powers of repartee and admirable gifts as a *raconteur*. The doors of Apsley House, his London home, were the first in England that were opened to Gen. Grant with a regal entertainment. He was known as a liberal Conservative in politics. The present and third Duke of Wellington, a nephew of the late Duke, who was childless, is the eldest son of his brother, Lord Charles.

Wilhelm, Duke of Brunswick, the last of the elder line of Guelphs, born April 25, 1806; died at his castle in Silesia, Oct. 17, 1884. He ascended the throne April 25, 1831, after the people had driven out his brother Karl, who refused to recognize the Constitution of 1820. Under his reign, feudal institutions were abolished, and Brunswick became one of the most progressive and prosperous of the German states. The Duke always observed the constitutional limitations, and was a popular monarch. When the people demanded a new Constitution in 1848, he resisted at first, instigated by the King of Hanover, yet when the reaction set in throughout Germany he made no attempt to revoke the liberties that he had granted, and withstood the pressure exerted by Prussia to induce him to put restraints on the press and the platform. His subjects were somewhat scandalized at his licentious pleasures, and frequent absences in Silesia and Vienna, and complained because he would not marry. He hoped in early life to become the consort of Queen Victoria, and subsequently he negotiated for a marriage several times, but was circumvented by intrigues in the interest of the Hanoverian Guelphs. For this reason, probably, he never would hold intercourse with any of the princely houses of Germany. The Prussian court also he disdainfully avoided, though in 1866 he followed the suggestions of his counselors and threw in his lot with the North German Bund.

Wilson, Sir James Erasmus, a British physician, born in Aberdeen, Scotland, April 28, 1809; died at Westgate-on-the-Sea, Aug. 8, 1884. He studied anatomy and medicine in London and at Aberdeen. In 1831 he became a member of the Royal College of Surgeons, ten years later one of the council, and in 1881 president. In 1869 he founded, at his own expense, the Chair and Museum of Dermatology in the College of Surgeons, and was elected the first professor. He also instituted the Chair of Pathology in the University of Aberdeen. Wilson's renown was definitely consummated when he took skin-diseases as his specialty, and published a popular work on the subject, which has passed through numerous English and American editions since its first appearance in 1842. His volume on "Diseases of the Skin" was followed by many other medical works and contributions to medical journals. He was sincerely religious and charitable, and for his numerous benefactions in restoring churches, establishing hospitals, and other acts of bounty, was knighted in 1881. At that period Sir Erasmus gained national fame of a new kind by transporting at his own cost the Egyptian obelisk that now adorns the city of London. Among the many honors conferred on him was that of LL. D. by the University of Cambridge, Vice-President of the Society of Biblical Archæology, and President of the Egyptian Exploration Fund. As residuary legatee, the College of Surgeons, London, of which he was president, will receive, on the death of his widow, the sum of $1,000,000.

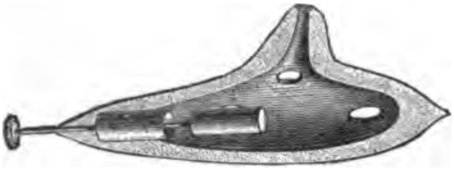
Wurtz, Charles Adolphe, a French chemist, born in Wolfisheim, near Strasburg, Nov. 26, 1817; died in Paris, May 12, 1884. He was the son of a Protestant clergyman, and received his early education at the Protestant Gymnasium of Strasburg. He then devoted his attention to medicine, and in 1843 received the doctor's degree from the medical school at Strasburg, where he also acted as instructor in chemistry from 1839 to 1844. Removing to Paris, he became associated with Dumas, and in 1846 he was placed in charge of the chemical department of the École Central des Arts et Manufactures. In 1851 he was made Professor of Chemistry at the Versailles Agricultural Institute. He was called to the chair of Chemistry in the Faculty of Medicine in 1853, and in 1866 was appointed Dean of the Faculty. A chair in Organic Chemistry was specially created for him in 1875 at the Sorbonne. His lectures at this institution continued up to the time of his death. Prof. Wurtz's scientific researches were many and important. No problem that he ever took up remained unsolved. Seventy-three memoirs are credited to him in the catalogue of the Royal Society in 1864, and after that his industry was certainly not diminished. Three discoveries of his are of special pre-eminence: his work on the compound ammonias, on the glycols, and on the aldols make his name prominent in chemistry. He was elected a member of the Academy of Medicine in 1856. In 1867 he succeeded Pelouze in the French Academy of Sciences. For three terms he was President of the Chemical Society of Paris—in 1864, 1874, and 1878. He was a member of the Royal Society of England, an honorary member of the German Chemical Society, and of other scientific associations. He received in 1865 the biennial prize of 20,000 francs from the Academy of Sciences, for his labors in chemistry, and in 1878 he received the Faraday medal. The "Répertoire de Chimie pure," founded and edited by him, was afterward merged into the "Bulletin" of the Chemical Society, his name being retained in the corps of editors. He was also one of the editors of the "Annales de Chimie et de Physique." His great editorial work, however, was the preparation and publication of the "Dictionnaire de Chimie pure et appliquée" (1868, *et seq.*), in five large octavo volumes, and its supplement, now being published. His numerous other works include "Traité de Chimie médicale," "Leçons élémentaire de Chimie moderne," "Traité de Chimie biologique," "Leçons de Philosophie chimique," "La Théorie Atomique," and "Histoire des Doctrines chimiques depuis Lavoisier jusqu'à nos Jours." Several of his works have appeared in the English language, notably "Chemical Philosophy according to Modern Theories" (1867), "Theory from the Age of Lavoisier" (1869), and, more recently, "Elements of Modern Chemistry" (1880), and, in the "International Scientific Series," "The Atomic Theory" (1880).

OCARINA. Several musical instruments of curious shape have recently appeared, one of which has enough harmonious sweetness to render it probable that it will find an abiding-place in concert-rooms as well as in musical households. It is called the *ocarina*, and in its simple form looks like a painted sweet-potato,



OCARINA, FIRST FORM.

with a row of holes in its side. It was the invention of an Italian mountain-boy, made for his own amusement. It was molded of clay, hollow inside, with a mouth-piece, and a row of holes by way of keys. It was then baked and glazed. Its tones were very sweet, but of course the range was exceedingly limited, for it could only produce notes from *do* natural to *fa* of the octave, going through the notes of the chromatic scale. It was a long time before the ocarina was other than this, but finally a band of wandering French minstrels attempted to give entire concerts with ocarinas, and the limits set upon their programme caused them to begin the expansion of the primitive melody-maker. They manufactured the instrument in different sizes, so that they soon had the soprano ocarina, the size of a small sweet-potato, and the double-bass ocarina, the size of a large pumpkin, with all the grades between. In all these the principle was unchanged, and it could not be made to harmonize with other instruments. So the musicians thought again, and the result was that a piston was introduced, which lowered or raised the note according as it was drawn out or pushed in. A little later, and a row of keys was added, corresponding with the row of holes, when a second octave changed the home-made affair into an article of such dignity that it has appeared in philharmonic concerts.



OCARINA, SECOND FORM.

OCARINA, THIRD FORM.

A writer for "La Nature" has made a still further experiment upon the ocarina principle. He took a wooden gourd, made some tiny holes in it, arranged much like those in the ocarina, fastened to it the mouth-piece of an old clarionet that was provided with a reed, and then enlarged the apertures until the true tones were obtained.

O'CONOR, CHARLES, an American lawyer, born in New York city, Jan. 22, 1804; died in Nantucket, May 12, 1884. His father, Thomas O'Conor, was a native of Roscommon county, Ireland, emigrated to this country in 1801, and shortly after married a daughter of Hugh O'Conor, who was not related to him. With William Kernan and others, the refugee became interested in the settlement of a tract of 40,000 acres in Steuben county, N. Y., and the great lawyer's first recollections of life were there. At the age of six he returned with his mother to New York, where he resided till his seventy-sixth year, when he settled in Massachusetts. His education was somewhat desultory, but his father gave personal attention to his studies. At the age of sixteen he began the study of law, which he pursued in the offices of Henry W. Stannard, Stephen D. Lemoyne, and Joseph D. Fay. He was admitted to the bar in 1824, and very soon, by indefatigable study, acquired a high local reputation, being in early life pitted against the leaders of the New York bar. His first reported argument was in the case of Divver *vs.* McLaughlin. The Forrest divorce case brought him into the widest national reputation at one step. Contending against so able counsel as John Van Buren, at the age of forty-six, he brought it to a triumphant issue, securing the divorce with liberal alimony for Mrs. Forrest. For his conduct of this case he was presented with two silver vases; one of them was from thirty ladies of New York, the other from sixty members of the bar. By a provision of his will, these vases were left to the Law Institute of New York city. The case of the slave Jack in 1835, the Lispenard will case in 1843, the Lemmon slave case in 1856 (in which he was opposed to William M. Evarts and Chester A. Arthur, who successfully defended the slaves), and the Parrish will case in 1862, were among the most notable of his cases up to the period of the civil war. In the Almaden Mining Company's case he made one of the greatest arguments ever delivered before the Supreme Court of the United States. He was also employed in the litigation concerning the Goodyear India-rubber patent. He was a member of the Constitutional Conventions of the State of New York of 1846 and 1864.

His interest in Ireland was always great, his ancestor Charles O'Conor, of Bellanagare, having been one of the founders of the patriotic movement that has lasted for two centuries. In 1848 he became one of the "Directory of the Friends of Ireland," organized in anticipation of a rising there, which had enrolled among its members Horace Greeley and Robert Emmet. In August of the same year a great Irish patriotic meeting was held in Vauxhall Gardens, New York city, which was addressed by Bishop Hughes and Gen. Hiram Walbridge. Mr. O'Conor presided at this, and also at a second demonstration a week later. In the same year he was the Democratic candidate for Lieutenant-Governor of the State of New York, and ran 3,000 votes ahead of the ticket, but was defeated. Under President Pierce he held for fifteen months the office of District Attorney of the State of New York.

When civil war was threatened, he was anxious to avert it, but, a life-long and most ardent Democrat, espoused in his own mind the cause of the South. After the war, when Jefferson Davis was indicted for treason, Mr. O'Conor became his senior counsel. He was also one of his bondsmen.

On Oct. 17, 1871, William M. Tweed was arrested in the name of the State of New York on a suit for the recovery of $6,312,541.37, and was admitted to bail in the sum of $1,000,000. With William M. Evarts, ex-Judge Emott, and Wheeler H. Peckham, Mr. O'Conor conducted the prosecution. He was commissioned on behalf of the State of New York by Gov. Hoffman to take such proceedings as might be necessary for the recovery of the money of which the city of New York was alleged to have been defrauded. Associated with the three lawyers named (one Democrat and two Republicans), he established in New York a branch of the Attorney-General's office, which he named "The Bureau of Municipal Correction." The civil suits for recovery of the money, intrusted to him, lasted until 1875, when the Court of Appeals decided that suit should have been brought by the county of New York. Mr. O'Conor immediately drafted the Civil Remedies Act, which was passed at the next session of the Legislature, and new suits were begun. He became weary with the slowness of the first suits, and published a volume entitled "Peculation Triumphant, being the Record of a Five Years' Campaign against Official Malversation, A.D. 1871 to 1875." In 1875 the new suits against Tweed and his co-workers were begun under the new act drafted as above described. Mr. O'Conor entered into them with great energy, and their final result is well known. In spite of the technical objections that eventually defeated these actions, they broke down the Tweed Ring completely. Mr. O'Conor contended that the actions were what the exigency demanded, and that they were proper in form. For his services in the work he declined to receive any compensation whatever.

During this period he conducted the great Jumel trial, in which the title to $6,000,000 worth of real estate in New York city was involved. On the first trial, in 1871, the jury disagreed, nine favoring the defendant for whom Mr. O'Conor appeared. The second trial, in 1872, before a struck jury, was won by the defense. Two months were consumed in the hearing of the first case, and eleven weeks in that of the second. Never, perhaps, had he been engaged in litigation requiring more skill and learning as an advocate, more exhausting labor in the collection and sifting of testimony. When he retired from the two suits, he had been triumphantly successful. Afterward, in a single particular, the United States Supreme Court modified the judgment of the court below. After his retirement from the case the property was sold at auction in 1882 on a compromise.

In the winter of 1876–'77, the Electoral Commission was organized, pursuant to an act of Congress, to determine the count of the presidential vote. Mr. O'Conor appeared before the Commission at Washington, and argued in favor of counting the electoral votes of the disputed States for Tilden and Hendricks.

CHARLES O'CONOR.

In 1873, when Frank Walworth, a young man, was tried in the city of New York for the murder of his father, the novelist Mansfield Tracy Walworth, Mr. O'Conor appeared as counsel for the accused. Old friendship for Chancellor Walworth, grandfather of the murderer, probably influenced him. The trial ended in a conviction of murder in the second degree, and a sentence to imprisonment for life.

Tenders of nomination to office were frequently made to him, but with one or two exceptions were declined. In the presidential campaign of 1872, when Horace Greeley was nominated for President by the Democratic Convention at Baltimore, Mr. O'Conor was nominated, in the face of his absolute refusal to accept, by the "Bourbons" at the Louisville Convention. He received 21,559 votes. In February, 1869, he was elected President of the Law Institute of New York, succeeding James T. Brady, who had died.

Up to the time of his death he worked at his profession. In 1882 he argued the Tennessee bond suit in Tennessee, which was decided adversely to the bondholders for whom he appeared. He remained in the case, and to his last hours of health was engaged in preparing for the second argument.

In 1880 he decided on making Nantucket his home, and in 1881 he erected a house and a fire-proof library there, and removed thither his furniture and books from Fort Washington, his home for over thirty years. In April, 1884, he took a trip to New York, caught cold, and on his return to Nantucket fell ill and died.

In 1854 he married Mrs. MacCracken, a widow, formerly Miss Cornelia Livingston, who died May 12, 1874. Mr. O'Conor never had any children. He was rather tall, slender, and remarkably straight. Up to the last he was as erect as a young man. His hair was very dark in youth, but for many years was of snowy whiteness. He had heavy eyebrows, and his eyes, which were blue, impressed most people as being black. A portrait in oil by Reinhardt hangs in the rooms of the Bar Association in New York. On April 16, 1867, a bust of him by J. Wilson MacDonald was presented to the Supreme Court of the State of New York, but he would not consent to its being placed there until after his death.

He was very fond of wit and humor, and used to introduce it into his briefs and arguments to such an extent that it sometimes became a defect. He remarked this himself, telling the writer that frequently, after yielding to the irresistible impulse in court, he would feel greatly mortified, but was certain to repeat the offense.

To the end of his life he wished to see the Democratic party triumph; but as party lines became of late years less distinct, he formed a theory that the work of politics was over. He formulated a new system of government. He held that there should be no political parties, that laws should be few and very seldom changed, that the office of President should be substantially abolished, and that the administration of the laws should be in the hands of a house of judges, subject to impeachment. He was extremely charitable, and gave away large amounts, generally in as secret a way as possible. This was done to spare himself the frequent application of professional beggars. Where his sympathies were not called into play, he was a remorseless judge of human nature; but, once the chord of sympathy was touched, his weakness manifested itself. By common consent he is placed among the leaders of the bar, standing with two or three others in the front rank. He won his success by dogged work, joined with great ability. He read to an enormous extent in law, but held that an hour's thinking was worth many hours of reading. The monument of his legal labors is preserved in the collection of his cases and opinions, filling more than a hundred volumes, bequeathed to the Law Institute of New York.

OHIO. The State officers for the year were as follow: Governor, George Hoadly; Lieutenant-Governor, John G. Warwick; Secretary of State, James W. Newman; Auditor of State, Emil Kiesewetter; Treasurer of State, Peter Brady; Attorney-General, James Lawrence; Commissioner of Common Schools, Leroy D. Brown; Board of Public Works, John P. Martin, George Paul, and Henry Weible; Judges of Supreme Court, Martin D. Follett, Selwyn N. Owen, John W. Okey, George W. McIlvaine, and William W. Johnson; Clerk of Supreme Court, J. W. Cruikshank.

Finances.—On Nov. 15, 1883, the public funded debt of the State was $4,522,515. During the year there was paid $419,635.81; leaving the public funded debt of the State, Nov. 15, 1884, $4,102,879.19. The reduction of the annual interest-charge during the year was $18,858.25. The irreducible State debt, on which interest is 6 per cent., now stands at $4,446,006.06. The local debts aggregated $49,258,383.93, an increase during the year of $1,625,260.72.

Military.—The Ohio National Guard consists of 87 companies of infantry, divided into 11 regiments, 1 battalion, and 2 unattached companies, and 8 batteries of light artillery, numbering, in all, 5,828 enlisted men, being an increase during the year of 871.

Benevolent Institutions.—The number of patients under treatment in the Insane Asylums during the year was 4,663, of whom 206 were discharged improved, 263 unimproved, and 257 died. In the Institution for Feeble-minded Youth there are 407 boys and 251 girls; in the Blind Asylum, 188 boys and 102 girls; in the Deaf and Dumb Asylum, 260 boys and 216 girls, and in the Soldiers' and Sailors' Orphans' Home, 408 boys and 234 girls.

Penitentiary.—By the act of March 24, 1884, the management of the Penitentiary was reorganized by the appointment of a board of managers, warden, and subordinate officers. By the same act the system of contract-labor was abolished; but this act, in the opinion of the Attorney-General, was not and could not, under the Constitution, be applicable to contracts in force when the law took effect. Therefore, much of the available labor is, and necessarily will be, for some time to come, applied to these contracts. Since May 1, 1884, when the new law went fully into force, contracts have expired under which 148 men have been employed; 592 prisoners are working upon contracts that will expire before Nov. 1, 1885; 242 upon contracts expiring between Nov. 1, 1885, and Nov. 1, 1886, and 265 upon contracts expiring between Nov. 1, 1886, and Nov. 1, 1887. Of the 1,365 prisoners confined Nov. 1, 1884, 1,346 were males, 19 females; 1,149 white, 217 colored; 89 were prisoners for life, 11 for general or indeterminate terms, and 1,265 upon sentences for specific periods; 1,193 were serving their first, 137 the second, 22 the third, 11 the fourth, and 2 their fifth term; 83 prisoners were over fifty, 1,025 between twenty-one and thirty, and 257 under twenty-one years of age.

By the act of March 24 and a subsequent amendment passed April 14, it was provided that in the case of persons that had never before been sentenced to the Penitentiary, except in cases of murder in the second degree, the court might, in its discretion, give a general sentence to the Penitentiary; in which case the managers could liberate the convict at any time, the duration of imprisonment depending on conduct. By still another act, passed April 14, an intermediate Penitentiary for first-offense cases was established, the support of which was provided for by the diversion to its use of 10 per cent. of all the money received from the tax on the liquor-traffic under the Scott law. The sum of $53,818.58 was received from this source during the year, but the annulment of the law by the Supreme Court prevented the use of the money, and nothing was done toward establishing the intermediate Penitentiary.

Industrial Homes.—In the Boys' Reform School there are 436 boys. An appropriation of $5,000 was made for industrial training. In the Girls' Industrial Home there are 273 girls.

Public Education.—The number of youth of school age in the State, Sept. 1, 1884, 1,074,557; number Sept. 1, 1883, 1,068,200; number of school districts in the State, 2,092; number subdistricts in townships, 10,067; number school-houses in township districts, 11,079; number school-houses erected within the year, 451; cost of school-houses erected within the year, $991,128; estimated value of school-houses, including grounds, $22,586,046; number of teachers necessary to supply schools, 17,243; number of different teachers actually employed, 24,665; number of public libraries reported, 216; number of volumes in libraries, 883,554; average number of weeks schools were in session, 31; number of pupils enrolled in schools, 762,755; average number of pupils in daily attendance, 499,217; number of school-officers, 48,287. The total and average cost is given as follows: In township districts, total cost, including 6 per cent. paid on permanent property, $4,409,723.23; in city, village, and special districts, total cost, including same, $5,167,914.99; in township districts, average cost per capita net, $9.66, and exclusive of 6 per cent. on permanent property, $8.36; in city, village, and special districts net per capita $17.01, and exclusive as above, $14.44; in township districts average cost per capita of daily attendance, $14.84; including 6 per cent., and in city, village, and special districts, same, $23.15; average cost per capita of average daily attendance in State, $16.47, and of enrollment, $10.78; in the State average cost per capita on the population between six and sixteen years of age, $10.17; same including 6 per cent. on permanent property, $11.85.

Railroads and Telegraphs.—The report of the Commissioner of Railroads and Telegraphs for the year beginning June 30, 1883, and ending June 30, 1884, makes the following showings: The increase of mileage during the year was 193, being 2·95 per cent. additional, making a total of 7,093 miles of railway in the State. The capital stock remained about the same, being $249,454,430.87. The debt increased so that the stock and debt together make $507,734,639, an increase of 6·25 per cent. The number of passengers transported during the year increased 4·84 per cent., and the number carried one mile, 2·29 per cent., at an average rate of 2·281 cents per mile, a decrease of 6·09 per cent. The tonnage of freight increased 6·28 per cent., and the ton mileage 7·15 per cent., while the average rate per ton per mile is 0·789 cent, a decrease of 9·92 per cent. The gross earnings increased from $49,900,506.26, in 1883, to $50,158,860.13, 0·52 per cent. The net earnings decreased 0·75 per cent., being $15,090,611.29, while the operating expenses increased 4·45 per cent. Three fourths of the railway mileage of Ohio is laid with steel. The number of railway employés in the State is 37,266, a slight decrease, and a little over 5 persons per mile of road. Since 1874 the number of locomotives has increased 54 per cent., and the number of cars 139 per cent. In 1874 there were 22 cars to each locomotive, while now there are 34. The number of persons killed in Ohio during the year was 334, 28 less than 1883; and of these, 10 were passengers, 127 railway employés, and 207 others. Of the employés killed, 16 were killed in coupling cars. During the year, 838 persons were injured, 116 less than the year before. Of these, 48, 5·7 per cent., were passengers, 579 were employés, being 69 per cent., and 211 others. Of the employés injured, 277, 47·9 per cent., were injured in coupling cars. In Ohio there are 2,422 brakemen; hence, one in every nine was injured in the act of coupling cars. There are 10,094·93 miles of telegraph reported in Ohio; the gross earnings of which are $1,417,200.21, and the net earnings $195,357.84.

Circuit Courts.—By the amendment to the judicial article of the Constitution, adopted by the people in 1883, district courts were abolished and circuit courts established. The Legislature, in April, divided the State into seven circuits, and provided for the election of three judges in each, the full term being six years. The twenty-one judges were elected in October, to begin their duties Feb. 9, 1885.

The Legislature.—The sixty-sixth General Assembly organized Monday, January 7. The Senate stood 22 Democrats and 11 Republicans; the House of Representatives, 60 Democrats and 45 Republicans. The Senate elected Elmer White, of Defiance, Speaker *pro tem.* The House chose A. D. Marsh, of Celina, Speaker, and A. L. Brunner, of Wyandot, Speaker *pro* *tem.* The vote of the State was counted January 9, and Governor Hoadly inaugurated as successor to Governor Forster, January 14. Hon. H. B. Payne was chosen United States Senator to succeed Senator Pendleton, March 4, 1885. The act of 1882, districting the State for congressional purposes according to the decennial census, was repealed, and a new apportionment was made. The principal other acts are referred to under the different sub-titles of this article. The session closed April 14.

The Liquor Question.—The liquor question continued to be important this year. as in the year preceding. The Scott law taxing the liquor-traffic, which was passed in 1883, and pronounced constitutional by the Supreme Court, was, early in the present year, again taken to the Supreme Court, which had been changed in its political complexion by the substitution of two Democratic judges for two Republicans. The court, in the new case before it, decided that the provision in the Scott law making the tax a lien on the property where the liquor was sold by a tenant, was unconstitutional, but declined to pass any judgment on the other parts of the law that imposed the tax. This decision, delivered in June, was not considered satisfactory by either the supporters or the opponents of the law, and preparations were made for the presentation of another case that would force a decision on the question of the tax itself being unconstitutional. Previous to this, in April, the Legislature had so amended the law as to make the tax payable semi-annually instead of annually, and a large proportion of the liquor-dealers had paid half the tax, some of them under protest, in expectation of a decision of the court in their favor. A new case was sent up, and on the 28th of October the Supreme Court extended its decision of June 17, by deciding that "inasmuch as it is plainly unreasonable and improbable that the General Assembly would have passed the Scott law, with the provision giving a lien for the tax on premises occupied by tenants eliminated therefrom, the whole act, so far as it provides for an assessment or tax, is unconstitutional and void." The court still declined passing on the constitutionality of other portions of the law. The decision created great excitement in the counties and municipalities throughout the State, which had not only appropriated the liquor-taxes already paid in, but had levied their other taxes for the coming year after giving credit to certain receipts from the tax on the liquor-traffic. They were compelled to face not only an unavoidable deficit in the next year's revenue, but a demand for the return of the liquor-taxes already paid.

The Ohio River Flood.—In February, the breakage of the ice in Ohio river and its tributaries, and the heavy rains that accompanied it, caused an unprecedented rise in the river. All the towns along the banks suffered heavily. At Cincinnati a large part of the city was under water, many houses were wrecked, lives were lost, and thousands were rendered temporarily if not wholly destitute. To add to the horrors, the gas-works were submerged, and the city was plunged into darkness. Relief poured into the stricken cities and towns of the river from all directions, and steamers were employed to distribute food and clothing. The climax was reached at Cincinnati at noon of February 14, when the water stood at 71 feet ¾ inch, the highest ever recorded.

The Cincinnati Riot.—In March, William Berner was tried in Cincinnati for assisting Joseph Palmer in the murder of his employer, William H. Kirk. The murder was one of great atrocity, and was confessed to by both Berner and Palmer. Notwithstanding this confession and the indictment for murder in the first degree, the jury found Berner guilty of manslaughter only. This, with the fact that about twenty other untried murderers were in jail in the city, inflamed the public mind. On the evening of March 28 a meeting was held in Music Hall to protest against the verdict, and to demand a reform in murder trials. It was made up mostly of solid men of the city, with apparently but a small infusion of the mob element. The meeting had not progressed very far, however, when the advocates of violent measures made themselves prominent. To avert mischief, if possible, the officers of the meeting declared it adjourned. Outside a crowd had gathered to learn the result of the meeting. A young man rushed excitedly out of the hall, shouting: "To the jail! Come on! Follow me, and hang Berner!" The crowd immediately turned toward the jail, yelling as they went. Some one rang the riot alarm, and that set thousands running in the direction of the Court-House. The crowd around the jail soon numbered many thousands, but the active operations were carried on by a few hundreds. The windows of the jail were soon broken. A carriage factory near by was forced open, and the crowd took out a huge beam and some sledge-hammers. The jail door was burst open, and the mob forced a way to the cell of William Berner. It was empty. The prisoner at the first alarm had been secretly removed and sent to the Penitentiary at Columbus. The sheriff brought a company of militia into the jail through a tunnel from the Court-House, and the rioters were ordered to withdraw. They refused, and firing at once began. Several persons were wounded, and the rioters were driven out. The mob built a bonfire against the walls of the jail, but with no effect. A gang broke into a gun-store and one of the militia armories, rifling them of arms and ammunition. All next day Cincinnati was disturbed with indications of a renewed outbreak. Incendiary proclamations were posted about the streets. The Governor was telegraphed to send troops, and two regiments of the Ohio National Guard were ordered out. At ten o'clock Saturday night, just twenty-four hours after the first alarm, the mob was again in action. By that time the rioters had forced their way close up to the Court-House, broken in the front of the treasurer's office, and set the building on fire. The leaders had demanded of the sheriff that he give up his prisoners taken from the mob. The demand was refused, and the leaders then declared that they would force their way in and blow up the west wing of the jail with dynamite. Firing began rapidly on the jail. In response to the fire-alarm, Capt. Desmond, of the military, entered the treasurer's office to put out the fire, and was fired on and instantly killed. He was a prominent lawyer and very popular. Two privates were wounded. The mob set fire to the Court-House without serious opposition, the soldiers all being on guard in the jail instead. They rolled in barrels of coal-oil and piled up boxes and set them all on fire. The mob rushed down Main Street to a gun-store, broke it in, gutted it, and set it on fire. That brought in the last alarm. A patrol-wagon responded. When it dashed up, the mob opened on it, killing one of the men and wounding several of their own number.

The Court-House was badly injured by the fire, but not totally destroyed. A large portion of the valuable records was saved, the money in the treasury preserved intact, and the vaults left in fairly good condition. During the whole of Sunday there were minor disturbances, and on Sunday night the riot was again under full headway, several shops being broken into and robbed by gangs of boys and men. Troops from all parts of the State were hurried to Cincinnati, several full infantry regiments and two batteries of artillery being dispatched to the scene of disorder. The troops were received with threats as they marched through the streets, and in some instances attacks were made and responded to by a few shots. Barricades were built by the troops to guard the leading business streets and public buildings threatened with destruction. During the night these barricades were several times attacked by the rioters, who fired volley after volley at the troops. These returned the fire after several warnings, and one round from a Gatling gun was also fired. While these exchanges of shots were going on the police were arresting the rioters in considerable numbers. After Sunday night the city gradually quieted down, and on the following Wednesday, the sixth day of the disturbance, the barricades were removed, street-car travel resumed, and the military sent to their homes with the exception of a single regiment. The exact number killed and wounded was never ascertained, but the most authentic list places the dead at 45 and the wounded at 138.

Hocking Valley Strike.—In April a disagreement as to wages arose between operators and miners in the valleys of the Hocking and its branches, ending, in June, in a general discharge of the workmen and the temporary cessation of labor, soon followed by the employment of imported laborers at rates of pay refused by resident miners. This lockout, or strike, continued throughout the year, and was productive of much suffering. From the outset the operators undertook to guard their property from injury at their own expense, and continued so to do, employing large numbers of armed men for that purpose. The great body of the striking miners were law-abiding, but a comparatively small number of lawless and criminal men seized occasional opportunities for mischief. During the course of this protracted controversy, two valuable mine-hoppers, a railway tunnel, and three railway bridges, were burned, seven mines were set on fire, and at least two armed attacks were made on the guards, during one of which a citizen was murdered while in the discharge of his duty as guard. In response to calls from the local authorities, the Governor sent four companies of troops, but soon removed them.

Political.—The Republican State Convention was held in Cleveland, April 23 and 24. The nominees were James S. Robinson, of Hardin county, for Secretary of State; W. W. Johnson, of Lawrence county, for Supreme Judge; Charles A. Flickinger, of Defiance county, for Board of Public Works. The platform declared in favor of protection of American industries without discrimination, condemned the doctrine of tariff for revenue only, and that of putting such raw materials as ore, pig-iron, wool, etc., on the free list; demanded the restoration of the wool tariff of 1867, and the equal consideration of labor with capital; indorsed the position of the party on civil-service reform; demanded that every voter shall have a free ballot, which shall be honestly counted, and heartily approved the administration of President Arthur.

The Prohibition State Convention, held at Columbus, June 18, placed the following candidates in the field: E. J. Morris, of Hamilton county, for Secretary of State; J. W. Rosenborough, of Fulton county, for Supreme Judge; W. J. Kirkendall, of Jackson county, for Board of Public Works.

The Democratic State Convention was held at Columbus, June 24 and 25. The following candidates were nominated: James W. Newman, of Scioto county, for Secretary of State; Charles D. Martin, of Montgomery county, for Supreme Judge; John H. Bender, of Tuscarawas county, for Board of Public Works. The platform reaffirmed that of 1883.

A Greenback-Labor ticket was also nominated.

The State election was held October 14, with the result of electing the three Republican candidates. The full vote was as follows:

SECRETARY OF STATE.

James S. Robinson, Republican	391,597
James W. Newman, Democrat	380,355
Peter M. Harold, Greenbacker	3,499
Evan J. Morris, Prohibition	8,607

SUPREME JUDGE.	
William W. Johnson, Republican	392,918
Charles D. Martin, Democrat	378,965
James R. Grogan, Greenbacker	8,808
John W. Rosenborough, Prohibition	8,178

MEMBER OF BOARD OF PUBLIC WORKS.	
Charles A. Flickinger, Republican	393,885
John H. Bender, Democrat	376,602
William B. Ogden, Greenbacker	8,528
W. J. Kirkendall, Prohibition	9,164

Twenty-one Congressmen were elected at the same time. In some of the districts, Prohibition and Greenback candidates were voted for.

ONTARIO. The Government.—The year 1884 found a Liberal Government in power in the province, under the Hon. Attorney-General Mowat. His majority in the Assembly was not large, and strenuous efforts were made by the opposition members to defeat his ministry. The test case on which the ministry were to be defeated was Kirkland's timber-limit scheme, in connection with charges of bribery. Everything was in readiness, when, at a signal, both Kirkland and an adventurer named Wilkinson were arrested for conspiracy to overthrow the Government. The trial lasted for weeks. Wilkinson was admitted to bail, but now resides in the United States. Kirkland, a lawyer and a very able man, pleaded that he did not understand the defeat of the ministry to be so serious; thought it was the same as in Wisconsin, where it made no difference to the party which way a man voted; and repudiated any connection with Wilkinson and his *confrères*. Being without friends, and personal bail not being acceptable, "the American," as he was called, was honored by Prof. Goldwin Smith, who came into court "to befriend a stranger in a strange land." The plot having been fully exposed, and the chief criminal being a mere party tool and beyond reach of the law, the case was allowed to lapse.

Crops.—Ontario has a very complete Bureau of Industries, which has been in operation for several years. In Ontario the year 1884 was highly favorable for fall wheat. With the exception of a few western counties, the wheat wintered well, and finally ripened in a healthy condition. In some instances the thrashed grain weighs from sixty-four to sixty-six pounds a bushel. The barley is plump and heavy, but owing to the rains in harvest-time is discolored, rendering it, as a rule, unfit for No. 1 Canadian. In the Lake Huron region, the barley, as well as the oat crop, was somewhat light, both in yield and in weight. Oats, as a rule, turned out well. Rye was not so good as usual. Peas, this year a most excellent crop, were almost entirely free from the bug or worm. There will be a large surplus for market. Corn turned out well. Sorghum, beans, buckwheat, etc., are not much cultivated in Ontario, but yield fairly well where tried. Clover-seed, a valuable product of Ontario, this year turned out to be destroyed by the midge. The first, or hay crop, was magnificent; the second, until near the time of cutting, seemed as fine as the first, but a few days rendered hundreds of acres unfit for cutting. Those who pastured the fields till June, and allowed the crop to grow to seed then, were the only ones that were successful with clover. Roots are, as a rule, extra good. The potato-crop is well gathered; only one district reports a rot, and this is in the extreme eastern part of the province. Turnips, many acres of which were plowed up early in the season, did not yield so much as is the rule. The dry weather in early stages of the crop was the cause. Mangolds, now extensively grown in Ontario, produced a remarkable yield. The majority of farmers plant as many acres of these as of turnips.

There is a large surplus of apples this year, but prices are low. The best qualities bring only from one dollar to one dollar and a half a barrel. Pears, peaches, plums, cherries, and grapes were, excepting in a few localities, very poor crops. Berries were very abundant.

Live-Stock.—Live-stock farming is one of the rising industries of Ontario. The grades of cattle are yearly improving, owing largely to the various exhibitions, fairs, etc. The almost universal practice with farmers now is to house the cattle during winter, and feed them; instead of, as formerly, letting them "run the barn-yard and feed from the straw-stack." There are hundreds of Ontario farmers now who turn out their ordinary stock in spring as sleek and fat as their beef-cattle would be some years ago. Nearly all the better class of farmers have fine stone stables, usually built as a foundation for the barns, in which cattle, roots, etc., are housed; while on the barn-floor above is found the straw-cutter, run by horse-power.

Dairy.—Butter and cheese factories are common all over the province. The farmers sell the milk, and receive the whey and the cash in return. In many localities the factories are managed on the joint-stock principle. In either case the result, as a rule, is satisfactory. One enterprising man has established a Jersey dairy between the cities of Toronto and Hamilton. In each city he has a depot, where persons wishing milk for invalids may be supplied. Though instituted for but a few months, the experiment is very successful.

Draining.—Great attention is being paid to tile-draining. During this year many hundreds of miles were put in. The enormous increase of tile-draining in this, as compared with former years, is attributable to two causes, the greater knowledge of its usefulness, and the fact that open drains are great hindrances to reaping-machines; and the general introduction of self-binders has rendered the closing up of the open drains a necessity. The Provincial Government assists municipalities in draining, subject, of course, to special circumstances.

Labor.—Farm-labor is plentiful and rather insolent; wages low. The old custom of having the hired man live in the family throughout the year is gradually disappearing from the older settled districts. The custom of engaging a man for the summer six months, and of doing without regular hired help for the other six, has taken its place. The better class of farmers are adopting another plan—the most satisfactory of all to the farmer: he engages a married laborer, provides him with a cottage and a plot on one corner of the farm, and engages his services for the year, or the summer six months, as suits his convenience.

Crop-Products.—The following table exhibits the statistics relating to the products, etc., of Ontario for the year 1884:

	Fall wheat.	Spring wheat.	Barley.	Oats.	Rye.	Peas.	Indian corn.	Potatoes.	Turnips.
Acres	864,740	721,647	700,472	1,481,828	103,416	570,928	174,560	168,757	104,199
Bushels	20,717,681	14,609,661	19,119,041	57,696,804	1,646,259	13,691,607	12,985,889	27,546,261	44,406,863
Per acre, average	24	20·2	27·3	38·9	15·9	24	74·1*	163·2	426·2
October, average price.	75c.	75c.	58c.	29c.	61c.	64c.	55c.†	32c.	....

* In ear. † Shelled.

Education.—During November and December, farmers' institutes or conventions were instituted in the various counties of the province. The object is to discuss questions connected with the farming interests. Already the effect has been remarkable. During the year, too, the Department of Agriculture introduced written examinations in agriculture. These examinations are for farmers' sons, and are held at the same time as the various teachers' examinations. The object is to encourage young men to remain on the farms.

In professional education some important changes have been introduced and advances made. The Minister of Education for the province, the Hon. G. W. Ross, has started a movement to confederate the various provincial universities. The plan is, to have one central provincial university and several colleges. Each of the present universities is to become a college, with a professional staff in the more ordinary departments; but in the higher and the science departments the university as federated shall supply the staff of professors. Each college is to be represented by a fixed number of members in the senate of the provincial university, which alone is to have the power of conferring degrees. Already Victoria University, the institution of the Methodist Church, Trinity University, Knox College, McMaster College, or the Baptist College, Wycliffe College, and the Western University, have signified their approval of the plan. Albert University, of Belleville, belonging to the late Episcopal Methodist Church, federated, at the time of the Church Union, with Victoria University of Cobourg. The Toronto School of Medicine, and St. Michael's College, the latter a Roman Catholic institution, were formerly affiliated with the University of Toronto. The only university in the province of any importance that has refused to enter the confederacy is Queen's of Kingston. Victoria will move from Cobourg to Toronto, and erect college buildings convenient to the University of Toronto, as the other colleges have done. The Minister of Education has also made an important move in the matter of provincial school text-books. He proposes, and is carrying his proposal into practical effect, to have but one book on any subject; one series of readers, one geography, one grammar, etc. Counsels are much divided as to the propriety of this scheme.

The Kindergarten system of educating junior pupils has been most successfully introduced in the province. The credit of the enterprise is due mainly to Mr. J. L. Hughes, Inspector of Schools, Toronto. Considerable discussion and correspondence took place during the year, relative to the introduction of the Bible into the public schools of the province. The law has for years permitted the reading of the Scriptures and of prayers approved by the Education Department, but nothing compulsory was in the law. Several extreme members of the clerical party endeavored to work up an excitement about the immorality of the youth of the land, owing to "new-fangled Yankee notions," and to the absence of Bible-reading in schools, but the law remains about as it was. The Minister of Education caused a selection to be made of the non-sectarian portions of the Bible, and this will be bound in a separate volume for use in the schools where it is deemed necessary to read the Bible.

Crime.—Crime in Ontario has been at a low ebb, so far as the more heinous offenses are concerned; but the petty crimes have been very common. Burglary especially has been exceedingly common in nearly all the large cities and towns, and the police seem to be of very little service. There is also a growing tendency to use fire-arms. The Blake act, forbidding, under severe penalties, the carrying of concealed weapons, is in force in Canada, and is largely instrumental in rendering the revolver unsalable.

Popular Demonstrations.—There were two great demonstrations to two noted politicians in Toronto in 1884. The first was a monster street procession in honor of the victory achieved before the Privy Council in London, by the Hon. Oliver Mowat, in connection with the boundary award. The Liberals of the province, from every municipality, turned out *en masse*. The second was a convention and banquet in honor of Sir John A. Macdonald's having been decorated with the order of the Garter, and also of his having attained his forty-first year of public life in Canada.

OREGON. State Government.—The following were the State officers during the year: Governor, Zenas F. Moody, Republican; Secretary of State, R. P. Earhart; Treasurer, Edward Hirsch; Superintendent of Public Instruction, E. B. McElroy. Judiciary, Supreme Court: Chief-Justice, Edward B. Watson, succeeded by Associate-Justice John B. Waldo; Associate Justices, W. P. Lord and W. W. Thayer.

General Condition.—In his message to the Legislature of 1855, the Governor uses this language relative to the growth of the State:

> Her agricultural products, her mild climate, her great natural resources, invite the immigrant, the capitalist, and the pleasure-seeker, while the sound basis upon which rest her finances, and the fact that within two years her taxable property has increased more than ten millions of dollars, clearly indicate that the State, in the face of a general business depression throughout the land, is in no danger of deterioration or decay. The Constitution was adopted at a time when the population of the State was less than 50,000, at a time when its wants and its resources were comparatively unknown. The small State Penitentiary then located at Portland was almost the only State institution, the agricultural products of our State were hardly sufficient for home consumption, and came almost exclusively from the west side of the Cascade range of mountains. We did not realize that we possessed, undeveloped, such elements of greatness. During the years that have since intervened, extraordinary progress has been made. Our population now numbers a quarter of a million. Our State institutions have developed in strength and usefulness. That portion of the State aptly termed the "Inland Empire" has been found to possess equal resources and possibilities, and now contributes an equal share toward the various revenues of the State. Her development is not yet complete, but, with the early construction of the locks at the Cascades and The Dalles, the commerce of a continent will traverse all her thoroughfares. Our common-school facilities, with an irreducible school fund, ample to give every child in the State a common education, several colleges and institutions of learning that are self-sustaining, a State University, an Agricultural College aided by lands donated for its institution and support, and many important industries, including agriculture, lumber, our fisheries, etc., which have made the name of Oregon famous throughout the world, all attest the advance that has been made by our State during her existence of a quarter of a century.

Finances.—The receipts for the period beginning Sept. 1, 1882, and ending Dec. 31, 1884, are as follow:

Four-mill tax of 1882	$255,874 43
Four-mill tax of 1883	301,227 80
Penitentiary earnings	26,055 86
Delinquent taxes	6,054 24
Private insane	5,368 71
Idaho insane	4,705 72
Sale of stamps	9,657 97
Sale of books	593 80
Miscellaneous	43,655 85
Making a total of	$652,693 88

Adding to this amount the sum of $122,608.36, which stood in the treasury on Aug. 31, 1882, to the credit of the general fund, we have the sum of $775,302.24, against which is to be charged the amount of the general appropriation made by the last Legislative Assembly, which leaves a balance to the credit of the general fund at the end of the fiscal year just closed of about $300,000, an excess of $175,000 over any surplus to the credit of the general fund ever heretofore reported to any Legislative Assembly of the State.

The assessed value of property is $78,000,000, while its real value is believed to be at least $150,000,000.

The indebtedness of the State, aside from deficiencies that have accrued during the past two years, is provided for from other sources outside of the general fund.

The general bonded indebtedness has been largely diminished during the past two years, and for a large part of that still outstanding there are funds on hand in the treasury. This indebtedness includes the Umatilla Indian war debt, the bonded debt created by the act approved Oct. 25, 1880, to complete the payment of the Modoc war bonds, the soldiers' bounty bonds, and the soldiers' relief bonds. In pursuance of the authority conferred by this act, the Treasurer sold one hundred and twenty bonds of the State of Oregon, each being for the sum of $500. From the proceeds of the sale of these bonds and from the surplus accruing from the three-mill tax, funds were provided for paying off all of the Modoc war bonds, and those bonds have all been paid except about $300 which have never been presented. The new bonds issued under the provisions of the act of Oct. 25, 1880, were made payable on or before the first day of January, 1890, at the option of the State. From the proceeds of the half-mill tax provided for in said act, the Umatilla Indian war bonds have all been paid, with the exception of $733.08 which have not been presented. From the remaining proceeds of said half-mill tax, thirty bonds of the new issue have been paid, leaving ninety bonds unpaid, representing an indebtedness upon this account of $45,000, together with accrued interest. On account of the Modoc war indebtedness there has been refunded to the State of Oregon, by the General Government, $70,000. On the soldiers' relief bonds there remains unpaid but $761.10, and money to meet this amount is in the treasury. Of the soldiers' bounty bonds there are still outstanding one hundred and fifty-nine of the denomination of $50 each. This constitutes the general bonded indebtedness of the State, and money for the immediate or proximate payment of it is now available.

An act was passed by the Legislative Assembly Oct. 21, 1870, providing for the issuance of bonds to aid in the construction of a canal and locks at Oregon City.

Of the swamp-land warrants there is yet outstanding the amount of $87,547.36 with accrued interest. As these are payable only out of the proceeds of the sales of swamp-lands, their redemption has been necessarily slow.

State Lands.—The 90,000 acres of land granted for the State Agricultural College, and the seventy-two sections set apart for the State University, have been selected and secured in full to the State. The proceeds of the sales of these lands, and of the lands set apart for the support of common schools, are bringing in a large revenue. The amounts of these funds are as follow:

University fund principal	$78,000
Agricultural-College fund principal	77,000
Common-school fund principal	980,000

Of the different classes of lands belonging to the State there have been sold since Sept. 1, 1882, as follows:

	Acres.
University lands	2,218·26
Agricultural-College lands	4,559·69
Common school	122,646·17
Internal improvements	82,743·18

The law governing the selection, approval, and disposition of the swamp-lands granted to the State by the act of Congress of March 12, 1860, has been a constant source of vexation, and is likely to prove a source of much litigation. For years the State has been making earnest efforts to secure a patent for the swamp-lands to which it is entitled under the act, but thus far with comparatively little success.

Insane Asylum.—The new insane-asylum building was ready for the reception of patients late in October, 1883, and those at East Portland were at once removed to it. The number of patients received at this time was 268 males and 102 females. Among the patients thus received were the insane of Idaho Territory. For the care and maintenance of these patients, from the date of their reception to November, 1884, there had been paid into the treasury of the State, by Idaho, the sum of $4,705.72.

The Penitentiary.—At the last session of the Legislative Assembly a law was passed authorizing the Superintendent of the Penitentiary to contract for the leasing of convict-labor, at a rate of not less than forty cents a day for each convict. Under the authority conferred by this law, a contract was made by the superintendent. The number of convicts increased from 178 on Aug. 31, 1882, to 256 on Sept. 7, 1884, and 274 on Dec. 31, 1884. In consequence, it became necessary to provide additional accommodations. The Governor recommends the establishment of a reform school.

Educational.—The common schools are in a prosperous condition. The State University and the State Agricultural College are doing good service. There are two State Normal Schools, a School for the Blind, and a School for the Deaf and Dumb. The number of children of school age increased from 69,076 in 1883 to 73,867 in 1884.

Political.—The twelfth annual convention of the Oregon State Woman-Suffrage Association met in Portland on Feb. 12. The following resolutions among others were adopted:

> That the proposed amendment to the Constitution of Oregon declaring—"The elective franchise shall not hereafter be prohibited to any citizen on account of sex"—contains the essence and spirit of the Declaration of Independence, and we pledge ourselves to use all honorable means in our power to secure its adoption by the people.
>
> That the thanks of this convention are due and are hereby tendered to the men and women of Washington Territory for the victory they have achieved in securing the elective franchise for the women of that Territory, and for the aid and encouragement thereby given to those engaged in the cause of equal rights in Oregon and elsewhere.

State Conventions of the Democratic and Republican parties were held to choose delegates to the National Conventions, and nominate candidates for Presidential Electors, Judge of the Supreme Court, and Congressman. The Democratic Convention met at Dalles City on April 17, and nominated John Myers for Congress, and William W. Thayer for judge. The Republican Convention met in Portland on the 30th of April, and nominated L. Flynn for judge, and Binger Herman for Congress. At the election on the 2d of June, the vote for Congressman was as follows: Republican, 25,699; Democratic, 23,652. For judge the Democratic vote was 24,892; Republican, 24,271. For the constitutional amendment, conferring the right of suffrage on women, 11,223 votes were cast; against it, 28,176. The Legislature of 1885 consists of 17 Republicans and 13 Democrats in the Senate, and 35 Republicans and 25 Democrats in the House. The following was the vote of the State for Presidential Electors on the 4th of November: Republican, 26,860; Democratic, 24,604; Greenback, 726; Prohibition, 492.

Portland Commerce.—The receipts at Portland of the leading articles of produce by the principal lines of transportation for the twelve months ending July 31, 1884, were:

Valley—826,583 ctls. wheat, 332,928 bbls. flour, 172,231 ctls. oats, 5,408 ctls. barley, 41,928 ctls. bran, 35,347 ctls. mill-stuff, 23,063 sks. potatoes, 13,045 bls. hay, 1,982,759 lbs. wool, 517,199 lbs. hides, 27 sks. flaxseed, 1,729,367 lbs. hops, 41,131 bbls. lime.

Eastern—2,061,469 ctls. wheat, 172,902 bbls. flour, 120 ctls. barley, 7,058 ctls. bran, 11,009 ctls. mill-stuff, 1,755 sks. potatoes, 220 bls. hay, 7,490,432 lbs. wool, 958,126 lbs. hides, 81,436 sks. flaxseed, 78,746 lbs. hops.

The receipts of several leading articles for two seasons compare as follows:

ARTICLES.	1883-'84.	1882-'83.
Wheat, ctls	2,888,052	2,059,825
Flour, bbls	505.825	474,076
Oats, ctls	172.231	143,600
Barley, ctls	5,528	4,961
Bran, ctls	48,986	58,898
Mill-stuff, ctls	46,356	48,369
Potatoes, sks	24,818	87,808
Hay, bales	13,265	14,966
Wool, lbs	9,478,191	8,152,682
Hides, lbs	1,475,325	1,681,810
Flaxseed, sks	81,463	91,885
Hops, lbs	1,808.113	629,617
Lime, bbls	41,131	43,720

The largest valley wheat receipts are from Linn, Marion, Lane, and Yamhill counties. Oats are well distributed, some coming from Puget Sound, but these are inferior to those of the State. Marion county is the largest flour-grinding county, several mills being located at Salem and Turner; Clackamas comes next, having three mills at Oregon City. Mill-stuff comes largely from these mills. Wool comes from Wasco, Umatilla, and other counties east of the mountains, from eastern Washington, and from the Umpqua valley in southern Oregon. Flaxseed comes from northern Idaho and points near thereto. Almost all the lime received is from the islands up Puget Sound. Hops are mostly from counties bordering on Puget Sound, although some comes from Yakima county, and more from the middle valley counties. The arrivals of wheat and flour, reduced to wheat, foot up a total equal to 212,689 short tons wheat.

Receipts by leading transportation lines from Aug. 1 to the close of 1884, as compared with a like period of the last cereal year, were:

ARTICLES.	1884-'85.		1883-'84.	
	Valley.	Eastern.	Valley.	Eastern.
Wheat, ctls	1,010,946	1,418,601	611,956	1,681,152
Flour, bbls	91,754	64,198	169,424	88,019
Oats, ctls	88,549	29,875	49,776	......
Barley, ctls	1,855	8,569	2,780	120
Bran, ctls	82,951	14,818	22,742	2.279
Mill-stuff, ctls	18,792	5,864	23,560	4,281
Potatoes, sks	29,151	498	12,822	614
Wool, lbs	974,180	897,881	1,124,407	868,700
Hides, lbs	219,960	227,880	205,048	859,145
Lime, bbls	12,568	.....	22,822	......
Flaxseed, sks	12	15,697	4	10,897
Hops, lbs	3,207,824	179,976	1,202,149	70,948

The wholesale trade of Portland, in 1884, amounted to $40,650,000, being less than in 1883, which was an exceptional year.

Salmon.—The salmon-canning industry has not been a profitable one for the past few years, and the season of 1884 was even less profitable than the preceding ones. This condition of things is largely due to overproduction. The season's pack, exclusive of British Columbia, has been stated as follows:

	Cases.
Columbia river	629,000
Sacramento, spring	70,000
Sacramento, fall	25,000
Rogue river, spring	6,000
Rogue river, fall	4,000
Alaska	45,000
Eel river	8,000
Coquille river	7,800
Smith river	5,000
Umpaqua river	8,700
Tillamook bay	4,500
Total	809,500

The British Columbia pack may be estimated at 100,000 cases. The shipments from Portland are shown below:

THE YEAR'S SHIPMENTS.	Cases.
To San Francisco	115,058
To England	303,926
To New York by sea	29,656
Eastward (rail)	158,242
Other points	150
Total	602,082

NEW SEASON'S (FROM APRIL 1) SHIPMENTS.	Cases.
To San Francisco	105,821
To England	303,926
To New York by sea	29,656
Eastward (rail)	149,796
Other points	50
Total	568,751

P

PALEONTOLOGICAL DISCOVERIES, RECENT. Hitherto no remains of air-breathing or land animals had been found below the Devonian series of rocks, although scorpions and other air-breathers had been discovered quite abundantly in the lowest carboniferous series. The first palæozoic scorpion which came to light was described by Count Sternberg, in 1835, as from the coal-formation of Chomb, Bohemia, and was named by Corda *Cyclophthalmus senior*. Another species was found in the same place three years afterward, which Corda described under the name of *Microlabis*. The next discoveries of palæozoic scorpions were made in 1866, when Messrs. Meek and Worthen described two new genera from the coal-measures of Mazon creek, Illinois, under the names of *Eoscorpius* and *Mazonia*. In 1873 Dr. Henry Woodward determined remains of scorpions referable to the genus *Eoscorpius* in both the coal-measures of England and the carboniferous limestone of Scotland. In 1881 Mr. Benjamin N. Peach described a considerable number of remains of scorpions, including some species of *Eoscorpius*, which had been obtained by the officers of the Geological Survey of Scotland from the lowest carboniferous rocks of the Scottish border. In the summer of 1884 Prof. Gustav Lindström, of Stockholm, obtained a fossil scorpion of much greater geological age than any of these, from the Upper Silurian strata of Wisby, in the island of Gothland, Sweden. In a letter to M. Alphonse Milne-Edwards of Nov. 24, 1884, Prof. Lindström says, describing his fossil: "The specimen is in sufficiently good preservation, and shows the chitinous brown or yellowish brown cuticle, very thin, compressed, and corrugated by the pressure of the superposed layers. We can distinguish the cephalo-thorax, the abdomen, with seven dorsal laminæ, and the tail, consisting of six segments or wings, the last narrowing and sharpening into the venomous dart. The sculpture of the surface, consisting of tubercles and longitudinal keels, entirely corresponds with that of recent scorpions. One of the stigmata on the right is visible, and clearly demonstrates that it must have belonged to an air-breathing animal, and the whole organization indicates that it lived on dry land. In this scorpion, then, which we have named *Palæophoneus nuncius*, we see the most ancient of land-animals. In the conformation of this scorpion there is one feature of great importance, namely, four pairs of thoracic feet, large and pointed, resembling the feet of the embryos of several other tracheates and animals like the Campodea. This form of feet no longer exists in the fossil scorpions of the carboniferous formation, the appendices belonging to which resemble those found in the scorpions of our own day."

Dr. Hunter, of Carluke, had obtained another fossil of a scorpion in June, 1883, from the Upper Silurian beds of Dunside, Logan Water, Lesmahagow, Lanarkshire, Scotland, of which he, however, failed to publish a description before the account of the specimen of Prof. Lindström had appeared. As described by Mr. Peach, the animal in Dr. Hunter's specimen "is about an inch and a half long, and lies on its back on the stone. Its exposed ventral surface shows almost every external organ that can be seen in that position, and in this way serves to supplement the evidence supplied by the Swedish specimen. As in the northern individual, the first and second pair of appendages of the cephalo-thorax in the Scottish example are chelate, but the palpi are not quite so robust. The walking-limbs, though not quite so dumpy as in *Palæophoneus nuncius*, also terminate each in a single claw-like spike. The arrangement of the sternum shows a large pentagonal plate (metasternite), against which the wedge-shaped coxæ of the fourth pair of walking-limbs abut. The coxæ of the third pair bound the pentagonal plate along its upper margins, and meet in the mid-line of the body, where they are firmly united. The coxæ of the first two pairs, as well as the bases of the palpi, are drawn aside from the center line of the body, showing that, as in recent scorpions, these alone are concerned in manducation, or rather the squeezing out of the juices of the prey. From the circumstance of these being drawn aside, the medial eyes are seen pressed up through the cuticle of the gullet, and a fleshy labrum (camerostome) appears between the bases of the cheliceræ. Behind the pentagonal plate and the coxæ of the hindmost limbs there succeeds a space shaped like an inverted V, where the test is thin and wrinkled in the line of the long axis of the body. It is just along this line that the trunk of the abdomen most easily separates from the cephalo-thorax in recent scorpions, and it is at once apparent that the trunk in this case is as far separated from the cephalo-thorax as it can well be without being detached. Similar longitudinally wrinkled skin is seen to unite the dorsal and vertical scutes up the whole right side of the trunk. At the interior angle of the inverted V there hangs downward a narrow bifid operculum flanked on each side by the combs, which have each a broad triangular rachis set along its lower edge with the usual tooth-like filaments. The combs almost hide the first of the four ventral sclerites, which bear the breathing apparatus in recent scorpions, notwithstanding which all four of these exhibit on their right side undoubted slit-like stigmata at the usual place. The fifth central scute of the trunk suddenly contracts posteriorly, and to its narrow end is articulated a long tail of five joints and a poison-gland with a sting. These joints are all constructed on the same principle as those of recent scorpions, and as the articular surfaces are more highly faceted on the dorsal than on the ventral aspect (a portion of the tail lying sidewise, allowing of these observations), there can be no doubt that the animal was in the habit of carrying the tail over the head (so to speak), and stinging in the same manner as its recent congeners." The above characters are shown in the accompanying engraving (Fig. 1), on a scale about twice the natural size, from a drawing taken by Mr. Peach. From it and from the description it becomes apparent that the animal was a true air-breather and a land-animal.

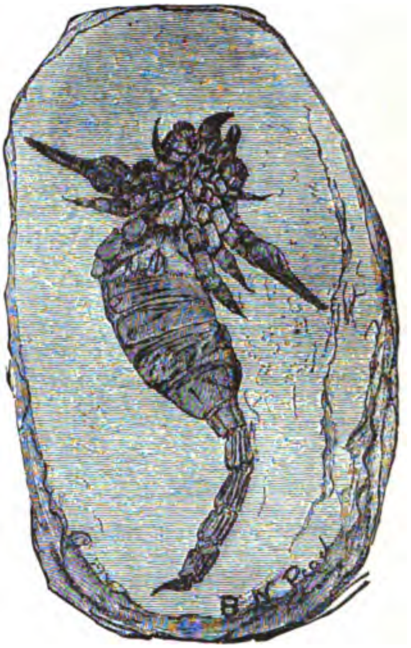


Fig. 1.—Fossil Scorpion, from the upper Silurian rocks of Lesmahagow, Lanarkshire, Scotland, found by Dr. Hunter, Carluke. (Magnified two diameters.)

The earliest fossil insects hitherto found were some specimens discovered by Mr. S. H. Scudder in the Devonian strata of New Brunswick. Very recently M. Charles Brongniart has described a fossil impression of the wing of an insect (Figs. 2 and 3) which was found by M. Douville, professor in the École des Mines, in the Middle Silurian sandstone of Jurques (Calvados), France. The specimen is imperfectly preserved, but most of the nervation is distinguishable. The wing, which is about thirty-five millimetres long, belonged to an insect of the family of the *Blattidæ*. The humeral field is broad, and there can be perceived on the specimen the upper humeral vein, the lower humeral vein, bifurcated at its extremity; the vitrean or median vein, also divided into two branches; and the upper and lower discoidal veins, with oblique divisions reuniting at the end, as may be still observed among some of the Blattids of our own epoch. It is also possible to trace the anal vein, which is nearly straight and reaches almost to the end of the wing, and the axillary veins, which are parallel to it. The length of the anal nervation and the inferior breadth of the axillary field are remarkable peculiarities, and distinguish this impression from all other wings of *Blattidæ*, both living and fossil. The *Progonoblattina Fritschii* (Heer) and the *Gerablattina fascigera* (Scudder) have a nervation similar to that of our Silurian wing. The name *Palæoblattina Douvillei*, after M. Douville, has been given to this fossil species. This fossil, being of the Middle Silurian, is considered superior in antiquity to both the Swedish and the Scottish scorpions, which are of the Upper Silurian age.

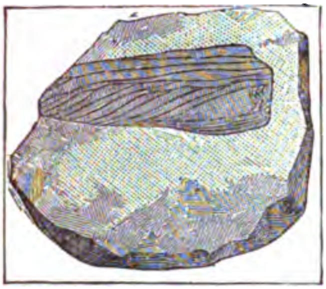


FIG. 2.—WING OF A FOSSIL BLATTA (*Palæo blattina Douvillei*), in a piece of Silurian sandstone (natural size).

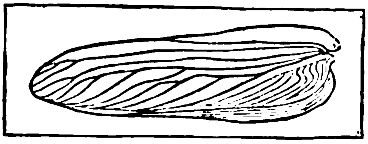


FIG. 3.—RESTORATION OF THE FOSSIL WING.

PAPER, CARBON OR IMPRESSION. The article known to the trade as impression-paper was first manufactured in England about 1835, and is employed for the duplication of writing or drawings by impressions, which may be increased in number by increasing the number of sheets of the impression-paper in the proportion of one of these to every two copies, the entire number being completed in one writing. Since 1880 the use of this mode of reduplication has come greatly in vogue, being employed by railroad and other corporations, by news agencies for the preparation of what are known as "manifold" reproductions of telegraphic news, and in all cases where rapid and extensive multiplication of copies is desired. The process of manufacture is simple in itself, but requires skillful manipulation, and some inventive shrewdness in the combination of the materials employed. A quantity of lamp-black being placed in a vat, sufficient lard-oil is added to it to bring it to the consistency of molasses. This mixture is thinly and regularly applied to sheets of tissue-paper, either by means of a brush or with a pad of lamb's-wool. This part of the process requires skill and expertness, as well as a delicate touch. After the paper is thus prepared, the superfluous oil is dried out by placing the sheets between newspapers, until there is only sufficient left to hold the lamp-black surface to the paper. The preparation is applied either to one or both sides of the sheet. In the latter instance there is a double reproduction when it is used in taking impressions. In the United States this manufacture is chiefly carried on in New York, five or six firms only being engaged in it. The cost of manufacture is about two dollars a quire, and the profit is large. Besides the ordinary black impression-paper, colored sheets are produced by using as a base, instead of lamp-black, the various colored chalks or crayons. The colored sheets are much employed in the reproduction of designs in fancy-work, for embroidery, etc.

PAPUA, or New Guinea, a large island north of Australia. The western half of the island is claimed by Holland, having been ceded by the chief of Tidore, one of the Molucca islands, who pretended to the sovereignty. The slave-trade and the *bêche de mer* fishery formerly attracted Dutch traders. At that period some measure of political jurisdiction was maintained, but for half a century there has been no political connection and very little commercial intercourse with the Dutch. When Germany, France, and Italy began to consider the feasibility of planting colonies in the South Sea islands, and turned their attention especially to New Guinea, the Australian colonists urged the British Government to annex the unclaimed half of New Guinea and the other islands of the Papuan Archipelago, on the ground that their settlement by foreign nations would constitute a military danger to Australia. The Australians have hitherto done little in the way of exploration in Papua, and their influence has not tended to enlighten; and Powell is the only person from the English colonies that has resided long among the natives and won their friendship and confidence, like the Italians D'Albertis and Beccari and the Russian Miklucho Maclay. The Australians have traded with the coast tribes, but only from their ships. The barbarous labor-traffic has been most frequently the object of their visits to Papua, New Britain, New Ireland, and the New Hebrides.

The trial of McNeil at Brisbane in November, 1884, revealed the methods of labor "recruiting," which have done more than anything else to arouse and perpetuate the hostility of the Papuans to the white race. McNeil, the first of these brutal labor-agents that has been convicted by a jury, and whose conviction was rendered possible by a recent act of the Queensland Parliament admitting the testimony of natives at the discretion of the judge, sailed in May, 1884, on a labor-cruise among the South Sea islands. As required by a recent statute, a Government agent went along, to see that the recruits understood the nature of their engagements and were fairly and freely employed. The party, armed with Winchester repeating-rifles, landed at a village on the coast of New Guinea to recruit. The struggles that attend these kidnapping operations are termed "scrimmages" in the phraseology of the slave-catchers. Here several natives were killed. At Normanby Island was another scrimmage, in which several Kanakas were captured, a number were slain, and McNeil himself received a spear-wound. At Harris Island, north of Normanby Island, the natives were as usual enticed to the side of the vessel on the pretense of trading. When the recruiting agent with a mixed crew of whites and blacks, all armed with rifles, stole around in a whale-boat on the unsuspecting islanders, they paddled for the shore with all their might. Pursuing the largest canoe, McNeil was struck with a paddle by an islander, and in return shot him dead. All in the canoe then jumped into the water, and a number of them were picked up by another boat from the schooner and "recruited." It was for this murder that McNeil was sentenced to be hanged. By means of a series of massacres like these, McNeil's schooner Hopeful obtained her cargo of laborers, bringing back to Queensland over 100 stowed in her hold. Such practices have rendered it impossible for the English to obtain a footing on Papua or to explore the interior. Expeditions up the Fly river and settlements on the coast, combining missionary purposes with the scheme of annexation, though aided by the colonial governments, failed at first on account of the malarial climate, the impassable nature of the country, and the inveterate hostility of the people. The missionaries Chalmers and Lawes, however, persevered in their efforts, and have established amicable relations with some of the tribes of the southern coast, and planted mission stations among them. They reside themselves at Port Moresby. The discovery of gold in the mountains near Port Moresby brought a large number of adventurers to the north shore of Papua, but they were unable to carry on mining operations, owing to the ferocity of the natives and the difficulty of obtaining a supply of food.

Attempted Annexation by Queensland.—The Queensland ministry in April, 1883, impatient at the inaction of the home Government, and confident of the support of public opinion in the colonies, took the bold step of proclaiming the annexation to the colony of the whole eastern half of New Guinea. H. M. Chester, police magistrate at Thursday Island, under instructions of the colonial Government, sailed to Port Moresby and raised the British flag in token of the formal occupation of the island. This act of Sir Thomas McIlwraith, then Premier of Queensland, was promptly and decisively disallowed and rebuked by Lord Derby, who hinted, however, that the Imperial Government would be more favorably inclined to the hopes of the colonies if they would strengthen their power by union, and combine to bear their equitable share of the cost of the development, administration, and defense of new possessions. Out of this suggestion was developed the convention of the Australian governments in December, 1883, which adopted resolutions in favor of a federation for defense and other common objects, and for the immediate purpose of securing the annexation of the islands of the western Pacific.

The colonial legislatures voted £15,000 toward the expense of the protectorate or annexation of New Guinea when the imperial authorities announced the intention of exercising jurisdiction over the southern coast. This contribution to the first year's expenses of the protectorate was made at the suggestion of the home authorities. The colonization of any of the neighboring islands by a foreign power, it was declared, would endanger the vital interests of the colonies. In July, 1883, Lord Derby declared that any attempt on the part of a foreign power to settle on the coast of Papua would be regarded by England as an unfriendly act. Reassured by this declaration, and confident of the effect of the forcible and persistent manifestations of their views, the colonists rested in the secure belief that the British Government would guard their interests. They were assured once more, in a dispatch of the Colonial Secretary, dated May 9, 1884, that no foreign power contemplated any interference in Papua.

English Annexation.—When the British ministry repudiated the annexation of New Guinea by the Queensland executive, they announced the intention of giving the high commissioner in Feejee jurisdiction over the acts of British subjects in the southern part of Papua, in view of the considerable trade that had sprung up with that coast. In May, 1884, the Secretary for the Colonies sent a dispatch expressing the determination of the British Government to take the southern coast under its protection. The ministers explained in Parliament that the jurisdiction to be established would extend to the subjects of foreign nations, and said that a high commissioner would be appointed for the new protectorate, who would be independent of the Governor of Feejee, the official intrusted with jurisdiction over Papua as well as over the western Pacific generally. In September the Victorian Premier asked all the colonial governments to unite in urging the British Government to include in the protectorate the whole of Papua and the islands beyond. The ministry of New South Wales held back, but the next month all the colonies joined in the request. The Government had already issued instructions to Admiral Erskine, commanding the naval forces on the Australian station. Hugh Hastings Romilly, deputy-commissioner for the western Pacific, was appointed to go to New Guinea and take measures for the exercise of the political and legal jurisdiction pending the nomination of a commissioner for that island. Acting under a mistaken impression of his functions, he issued a proclamation on October 23, taking under British protection all of New Guinea except the part claimed by the Netherlands.

Admiral Erskine, after receiving the official instructions, set sail in the Nelson, and on the 6th of November, from Jackson's Harbor, at Port Moresby, proclaimed the protectorate, as intended by the Imperial Government. There were fifty native chiefs present at the ceremony of raising the flag, and five British vessels of war lay off the shore. The chief of the greatest consequence was selected as the chief-paramount, although, in reality, the tribes are independent of each other. He was invested as the Queen's deputy-lieutenant by the bestowal of a white wand bearing the Queen's likeness in the shape of a silver florin set in at the top. The Nelson, accompanied by three other vessels, then cruised along the shore, anchoring in four other commodious harbors, all difficult to enter, however, like Port Moresby, on account of coral-reefs. The protectorate was proclaimed with similar ceremonies at nine different places, the last being Testi Island. In each place a chief-paramount was selected and constituted the repository of imperial authority with a symbol of investiture. The admiral announced to the natives that the object of the protectorate was to render their lives and liberty more secure.

The protectorate established by Great Britain over the south coast of New Guinea extends from the 141st meridian, the boundary of the Dutch possessions, eastward to East Cape, in Goschen's Straits, including the islands adjacent to the mainland in the straits as far south and east as Kosman Island. The extent of the protectorate inland is not defined further than in its limitation to the country adjacent to the shore. No persons will be permitted to settle or to acquire land within the protectorate unless expressly authorized by the commissioner. This restriction is only provisional, pending the adoption of regulations for the occupation of land after the appointment of the high commissioner. As the country is thickly peopled, and the soil admirably tilled, there is little opportunity for agricultural settlement.

German Annexation.—It was reported in the early summer that the English Government had altered its intentions regarding annexations in the Papuan Archipelago on account of the attitude of Prince Bismarck. In the diplomatic controversy on the subject of the colonial policy of Germany, and in the negotiations into which the British Cabinet was drawn, the Papuan islands were undoubtedly mentioned. In October the "North German Gazette" made the semi-official communication that, as the result of an exchange of views, the English Government had resolved to place under its protection only the south coast of New Guinea and the islands immediately adjacent. In reference to this statement, Mr. Ashley denied that there was an arrangement with Germany as to her occupation of the northern part of the island. The occupation followed, however, to the dismay and indignation of the Australians. The colonial politicians openly discussed the question of separation from the mother-country, and compared the situation to that which led to the revolt of the American colonies. Mr. Service, in a memorandum dated December 20, hinted at such a result. "Australia was not allowed," he complains, "to act for herself, and the Imperial Government will not act on her behalf. Meanwhile, Australia has to stand by and see territories, the possession of which she regards as essential to her safety and well-being, pass to another power." He invited the colonies to join in a collective protest against the German annexation of a portion of New Guinea. The Colonial Secretary of New South Wales declined to unite in such a protest until information was received whether the annexation was the result of an agreement, and whether steps would be taken to extend the British protectorate to the German line and over all the islands of strategical importance in that part of the Pacific.

A few days after the formal occupation of the southern shore by England, German naval officers, who sailed from Australia about the same time that the English admiral left for New Guinea, hoisted the German flag at twelve places on the northern shore of New Guinea and on the adjacent islands of New Britain and New Ireland, besides the Admiralty Islands, and several other productive islands in this part of the ocean. The territory annexed on the Papuan coast is Cape King William and the neighboring districts on the northeast side. It is described as the most healthful part, and admirably adapted for colonization. The land rises in terraces to the Finisterre Mountains. There is plenty of good pasture for grazing purposes. The country is well watered by streams flowing out of the mountains. The natives are friendly. The natural products of the northeast coast are manifold and abundant, and of sufficient commercial value to start a busy trade. This is the very district in which a party of English colonists intended to settle in 1883, if their organization had not been discountenanced by the Government.

PARAGUAY, a republic in South America; area, 91,650 square miles.

Population.—The last census (1879) fixes the population at 346,048, exclusive of 60,000 semi-civilized Indians and 70,000 wild Indians. Since the war of 1865–'70, the number of females has greatly predominated. The number of foreigners is estimated at 7,000, more than one third of whom are Italians. Next to them, the most numerous are Brazilians, Argentines, Spaniards, and Portuguese. Since 1883 the number of Germans has rapidly increased. The leading cities are: Asuncion, the capital, with a population of 20,000 souls; Villa Rica, 12,570; Villa Concepcion, 10,697; Villa San Pedro, 9,706; Luque, 8,878; San Estanislao, 7,453; Itanguá, 6,948; Ita, 6,332; Paraguari, 5,315; Villa Humaitá, 3,868; Villa Pilar, 3,722; and Jaguaron, 3,418.

Government.—The President is Gen. B. Caballero (since Nov. 25, 1882). The Cabinet is composed of the following ministers: Secretary of the Interior, Col. Mesa; Foreign Affairs, J. S. Decoud; Finance, J. C. Jimenez; Justice and Public Worship, Señor Gonzalez; War, Col. Duarte. The United States Chargé d'Affaires is the Hon. W. Williams.

Army and Navy.—All Paraguayan citizens are bound to perform military service, but for economical reasons the standing army has been reduced to 500 men (350 foot and 150 horse), a portion thereof keeping garrison at Asuncion, and the rest doing frontier duty. In case of war, the National Guard is enrolled. The country is divided into seventy departments, and at the head of each stands a chief of police. The navy consists of a screw-steamer man-of-war of 440 tons, mounting 4 guns, and having a crew of 36 sailors, commanded by 6 officers, besides 3 small steamers guarding the ports.

Finances.—The home debt has been reduced to $475,720 by the sale of public lands and the railroad, and through the operations of a sinking fund created by setting aside for it 10 per cent. of extra duty. The foreign debt amounted on Jan. 1, 1883, to $16,818.42.

Paraguay derives its revenue chiefly from the customs, which in 1882 produced $477,621; adding thereto other items of income, the aggregate amount reached $542,000.

The estimates of expenditure for 1883 were:

Interior	$148,628
Foreign Affairs	8,760
Treasury	58,148
Justice, Public Worship, etc	63,684
Army and Navy	73,744
Total	$352,964

Communications.—The only railway in operation is the one from Asuncion to Paraguari, forty-five miles, which in 1882 conveyed 90,418 passengers, and in 1883, 92,334. In 1882 the gross earnings amounted to $68,343, and in 1883 to $71,055. Two telegraph lines are in operation, one running parallel with the railroad aforenamed, and the other, inaugurated in March, 1884, called the Paso de la Patria line, connecting with the world's cable system. The items of mail matter forwarded were:

DESTINATION.	1880.	1881.	1882.
Inland	20,796	34,117	54,150
Received from abroad	30,860	47,134	60,050
Sent abroad	15,679	48,862	61,602
Total	67,335	130,113	175,802
Amount of postage collected	$1,372	$2,227	$2,303

Commerce.—The commercial movements in two years were as follow:

YEARS.	Imports.	Exports.	Amount of duty collected.
1881	$1,290,000	$1,929,000	$427,000
1882	1,820,000	1,650,000	477,000

The chief articles of import in 1882 were: Cotton goods, $264,576; groceries, $230,743; liquors, $195,579; hardware, $142,145; woollens and linens, $85,315; and drugs, $35,332. The exports consisted of yerba maté or Paraguay tea, $964,800; leaf-tobacco and cigars, $410,380; hides and skins, $148,482; oranges, $25,078; besides woods, tanning-bark, essence of orange-blossoms, leather, and minor articles.

PARKER, WILLARD, an American surgeon and physician, born in Lyndeborough, N. H., Sept. 2, 1800; died in New York city, April 25, 1884. He was the son of a New England farmer, and the eldest child of a family that numbered five sons and two daughters. Before he was five years old his parents went to Chelmsford, Mass., where a home had been owned by his ancestors since the year 1652. He there began the education that is common to New England boys; working on his father's farm in summer, and attending the village school in winter. Later, he taught the same school, and saved up money with which to go to college. A long course of economy was required; and when, in 1822, he entered Harvard College, he was five or six years older than the average freshman of that time. George Bancroft was one of his tutors. The most noticeable incident of the four-years' course was one that determined his choice of a profession. He had begun his studies with a partly formed plan of entering the ministry. His room-mate fell seriously ill; the cause of the disease was obscure. Dr. John C. Warren, being called, recognized the case as one of strangulated hernia, and that it was so far advanced as to require immediate surgical aid. Dr. Warren was successful in relieving the patient by the method of *taxis;* his life was saved, and young Parker was so deeply impressed with the skill and success of the operation that he abandoned the idea of studying theology and chose surgery for his profession. He was graduated with fair standing in 1826; beginning his medical studies at once, he was entered at the Harvard Medical School, where Prof. Warren was one of his instructors. On completing the two prescribed annual courses of lectures and receiving his medical degree, he entered the Chelsea Hospital as *interne*. Henceforward his life became a matter of public record. In 1830 he was appointed Professor of Anatomy; in 1833, Professor of Surgery, in the Berkshire Medical College; and in 1836 and 1837 he visited the great hospitals of Paris and London. On his return he was solicited to go to Cincinnati to accept a surgical professorship, but declined, and chose New York city as his home. He was appointed Professor of Surgery in the New York College of Physicians and Surgeons in 1839, a post which he held for thirty years. In connection with that institution he established in 1840 the first college clinic in the United States—a feature of medical instruction that has been extended since then to the larger medical schools of the country. With the Bellevue Hospital of New York he was connected for many years as attending and consulting surgeon. He was made President of the New York State Inebriate Asylum in 1865. His active and honorary appointments were numerous. He had a very extensive private practice. His remarkable skill and knowledge, his strict professional and personal integrity, his abounding energy and breezy humor, endeared him to a large circle of friends and patients. He was a man of few enemies, and few American surgeons have filled more acceptably so many positions of high responsibility as Dr. Parker, or filled them with more capacity, zeal, and vigor. His eminent success in treatment was based upon great knowledge and skill, and absolute good faith in the management of cases. In 1854, first in this country, he described and reported cases of malignant pustule; and he first discriminated the phenomena of concussion of the nerve-centers from those of nerve-concussion itself. Dr. Parker's extensive private practice prevented him from giving much time to writing; yet he left a considerable number of monographs upon surgical and medical subjects. Among these may be mentioned "Cystotomy" ("New York Medical Journal," 1850); "Spontaneous Fractures" ("New York Journal of Medicine," 1852); "On the High Operation for Stone in the Female" ("New York Journal of Medicine," 1855); "The Concussion of Nerves" ("New York Medical Times," 1856); "Ligature of the Common Carotid" ("New York Medical Journal," 1857); "Hospital Gangrene" ("American Medical Times," 1863); "Ligature of the Subclavian Artery" ("American Medical Times," 1864); "Spermatorrhœa" ("American Medical Times," 1864); and a "Lecture on Cancer" ("New York Medical Record," 1873).

PATENTS. The business of the United States Patent-Office was about the same in 1884 as in 1883. Its total receipts were over $1,000,000, and its surplus for the year was over $100,000.

Statistics.—Below are some tabulated statements of the year's work.

Receipts	$1,075,798 00
Expenditures	970,579 76
Receipts over expenditures	$105,219 04
Expenditures for salaries	557,859 25
Applications filed for patents, caveats, trade-marks, and labels	40,710
Applications filed for patents only	35,600
Patents issued	20,297
Patents reissued	116
Trade-marks and labels registered	1,584
Patents expired during the year	12,301
Withheld for payment of final fee	2,839
Patents issued to citizens of the United States	19,018
Patents issued to foreigners	1,284

The designating numbers of first and last patent, etc., for 1884, were:

DATES.	Patents.	Designs.	Trade-marks.	Labels.	Reissues.
First number in 1884..	291,016	14,528	10,822	3,791	10,421
Last number in 1884..	309,818	15,645	11,824	4,299	10,546

Among the citizens of foreign countries, those of England received 438 patents; of Germany, 253; of Canada, 220; of France, 161. From these as leaders the list runs down; several states, such as Venezuela, only receiving one patent. Among the citizens of the different States of the Union, those of Connecticut, with 896 patents, head the per capita list with one patent for every 694 inhabitants; the District of Columbia, with 207, has one for every 858 inhabitants; New York, with 3,924, has one for every 1,295 inhabitants; North Carolina comes at the foot of the list with 58, which is one for every 24,183 inhabitants.

Annual Reports.—The Commissioner's annual report for 1884 was published in the "Official Gazette" for Feb. 10, 1885. It bears date of Jan. 31, 1885.

Foreign.—The business of the English Patent-Office under the new law was very large, about 17,000 patents being issued. This in a few years will render the British reports of greater comparative importance in determining anticipations. There appears to be no probability of an international patent law for some time to come. The patent laws of the different countries have been so varied in their form that an assimilation at this late date would tend to much confusion, at least until one generation of patents was disposed of.

Litigation.—The year was signalized by several important litigations. After four years devoted to the taking of testimony and completing the record, the great Bell-Drawbaugh telephone suit came to trial before Judge Wallace in the United States Circuit Court in New York. The printed record, briefs, abstracts of testimony, etc., filled twenty octavo volumes. In its argument nearly two weeks were consumed. Messrs. Edward N. Dickerson and Roscoe Conkling were among the counsel for the Bell Company; while ex-Judge Lysander Hill and Senator Edmunds, among others, opposed them. The case, which was probably the greatest patent suit ever tried, was computed to involve $100,000,000. It was decided by Judge Wallace in favor of the Bell Telephone Company. The famous patents granted to Alexander Graham Bell for the electrical telephone were attacked in this suit, and the decision affirmed their validity. The Bell patents have been declared invalid in Canada, for non-compliance with the requisite conditions.

The treatment of patents, and especially of reissued patents, by the Supreme Court of the United States, has been as severe as ever. Reissues are decided against to such an extent that it is very risky to bring suit upon one, in the present temper of the court. One of the justices composing this tribunal has seen fit, however, to dissent most emphatically from his colleagues. In the case of Mahn against Harwood, decided Dec. 1, 1884, and reported in the "Official Gazette" of the United States Patent-Office, vol. xxx, p. 661, Justice Miller thus expresses himself at the end of the dissenting opinion alluded to: "In several cases that have preceded this one, especially Miller *vs.* Bridgeport Brass Company (104 U. S. R., 350), where this doctrine [of the invalidity of reissues for laches] has been stated in the opinion, other grounds were also given as the foundation of the judgment. I also hoped that when we came to a case where the question must be decided, my brethren would not adopt it, on full consideration. This must be my apology for any apparent acquiescence in it heretofore. I am of opinion that reissued patents are entitled to the same consideration as other patents issued by the Government." This opinion was received with great interest by patent lawyers, who hope for more moderate rulings on reissued letters-patent.

The litigation concerning the famous barbed-wire-fencing patents is still in progress. These are enormously valuable. In one year, $300,000 were spent in litigation concerning them.

The Commissioner.—The President has appointed Martin V. Montgomery as Commissioner of Patents, in place of Mr. Butterworth, resigned. The new official was born Oct. 20, 1840, in Eaton Rapids, Eaton county, Mich. He was admitted to the bar in the Circuit Court for the county of Eaton, in October, 1865. Since that time he has been admitted to practice in all the Federal courts, including the Supreme Court. His practice in the State of Michigan has been very extensive.

Decisions.—The following is an abstract of a few of the more generally useful decisions rendered in patent cases by the United States courts during 1884. The references are to page and volume of the "Official Gazette" of the Patent-Office.

The process of operating a mechanism is not patentable. (Dreyfoos *vs.* Weisse, xxvi, 689.)

Infringement of patent without knowledge of patentee does not work an abandonment. (Adams *vs.* Howard, xxvi, 825.)

A prior application for a patent, without evidence to show that the thing was ever constructed, is not enough to defeat a patent. (Same case.)

Invalidity of one claim of a reissue does not render other claims invalid. (Reay *vs.* Raynor, xxvi, 1111.)

When a patentee has sold his right, title, and interest in, to, and under a patent, and afterward purchases another patent of prior date for the purpose of defeating his assignee's rights, it was held that such proceeding is manifestly unjust and inequitable, and the original sale operates as a license. (Curran *vs.* Birdsall, xxvii, 1319.)

A photograph produced by an operator who posed the subject, arranging the costume, drapery, etc., was held to be a work of art and subject of copyright. (Burrow Giles Lith. Co. *vs.* Sarony, xxvii, 418.)

Every patent for a product or composition of matter must identify it so that it can be recognized apart from the description of the process for making it, or else the invention will be limited to the process. Also, artificial alizarine is not patentable as a product, because it is set forth as an old thing made artificially. (Cochrane *vs.* Badische Analin und Soda Fabrik, xxvii, 814.)

When an original patent is valid and its reissue invalid, there is no reason why a second reissue, embracing the valid claim of the original patent, should not be valid. (G. Powder Co. *vs.* S. Nitro-P. Co., xxvii, 99.)

What would infringe the patent if later, anticipates if earlier. (Peters *vs.* Active Mfg. Company, xxviii, 1102.)

A structure embracing all the elements of the patented article and also another feature not found therein, is an infringement. (Roemer *vs.* Simon, xxviii, 194.)

An officer of a corporation actively participating in an infringement by said corporation, is liable therefor. (Nat. Car-Brake Shoe Co. *vs.* Terre Haute Car Mfg. Co., xxviii, 1007.)

In the same case it was held that "the record at Washington is notice to all the world."

The provisions of the statute as to limitation of United States patents, as influenced by previously granted foreign patents, only apply to the term for which the foreign patent was originally granted, and not to any accidental lapsing of the same. (Holmes E. P. Co. *vs.* Met. B. A. Co., xxviii, 1189.)

When one party makes one part of a patented combination, and another makes the other part, and the parts can not be used separately, there is joint infringement. (Schneider *vs.* Pountey, xxix, 84.)

The fact that a patented article was immediately successful in the trade is evidence of invention, and want of any success indicates an abandoned experiment. (Hicks *vs.* Otto, xxix, 365.)

Business circulars issued only to the trade are not publications within the meaning of the statute. (N. P. Fermentation Co. *vs.* Koch, xxix, 535.)

PEEL, ARTHUR WELLESLEY, an English statesman, born in August, 1829. He is the youngest son of the late Sir Robert Peel, who was Prime Minister in 1841–'46. The son was educated at Balliol College, Oxford, being graduated in 1852, and studied law, but was never called to the bar. In 1863 he was a candidate for member of Parliament from Coventry, but was defeated. Two years later he was returned as a Liberal for Warwick, and he has represented that constituency ever since. He has had wide experience in the government service, being Secretary to the Poor-Law Board from Decem-

ARTHUR WELLESLEY PEEL, SPEAKER OF THE HOUSE OF COMMONS.

ber, 1868, to January, 1871; Parliamentary Secretary to the Board of Trade from January, 1871, to August, 1873; Secretary to the Treasury from the latter date till February, 1874; and Under-Secretary of State for the Home Department from April to December, 1880. On the 26th of February, 1884, he was elected Speaker of the House of Commons, succeeding the Right Hon. Sir Henry Brand. He has never been knighted — perhaps because his father, who had declined both knightage and a peerage, left in his will an injunction to his sons never to accept any such distinction.

PENNSYLVANIA. State Government.—The following were the State officers during the year: Governor, Robert E. Pattison, Democrat; Lieutenant-Governor, Chauncey F. Black; Secretary of State, William S. Stenger; Treasurer, Willian Livsey; Auditor-General, Jerome B. Niles; Secretary of Internal Affairs, J. Simpson Africa; Attorney-General, Louis C. Cassidy; Superintendent of Public Instruction, E. E. Higbee; Insurance Commissioner, J. M. Forster. Judiciary, Supreme Court: Chief-Justice, Ulysses Mercur; Justices, Isaac G. Gordon, Edward M. Paxson, John Trunkey, James P. Sterrett, Henry Green, and Silas M. Clark.

Finances.—The fiscal year that closed Nov. 30, 1884, began with a cash balance in the treasury, Dec. 1, 1883, of $3,534,538.03. During the year there was received, for the general fund, $3,735,279.87, and for the sinking fund, $2,491,679.51, making the total receipts $6,226,959.38. For the same period the payments were, for the general fund, $4,377,515.68, and for the sinking fund, $3,266,396.62, making the total payments $7,643,912.30. While the receipts were thus less than the expenditures, yet, with the cash balance on hand, Dec. 1, 1883, from former years, the Treasurer was enabled to meet all the current expenses during the year, and, at the same time, invest for the sinking fund $2,150,476.37, and close the year with a balance in the treasury of $2,117,585.11. The apparent excess of payments over receipts for the year is $1,416,952.92. Of this excess, however, $774,717.11 is invested in the sinking fund to secure the payment of the debt of the State. This leaves, therefore, as the real excess of expenses over receipts, $642,235.81. This difference may be accounted for by a net decrease in the receipts over the previous fiscal year of $874,465.66. Of the gross decrease, $547,758.32 occurred in the receipts from the five items of tax on capital stock of corporations, of gross receipts, of collateral inheritance tax, of retailers' licenses, and of tavern-licenses. The excess of payments over the previous fiscal year is due mainly to the extra session of the Legislature. The increased payments to charitable and reformatory institutions, to public printing, to normal and common schools, to penitentiaries, and to costs in suits against dealers, six items, amounted to $258,802.37.

The following is a statement of the condition of the public debt:

Three and a half per cent. loans, due 1912....	$1,755,900 00
Three and a half and four per cent. loans of 1881, due 1885 to 1892....................	1,870,600 00
Five per cent. loans of March 20, 1877, due 1892	7,767,800 00
Four per cent. loans of 1879, due 1894	1,917,000 00
Four per cent. loans of 1879, due 1912	5,108,800 00
Miscellaneous loans upon which interest has ceased	165,188 23
Six per cent. agricultural bond	500,000 00
Total debt..............................	$19,084,288 23

The following are the chief items of receipts and disbursements for 1884:

RECEIPTS.

Tax on capital stock	$1,585,727 56
Tax on income..............................	71,616 36
Tax on gross receipts........................	787,929 20
Tax on gross premiums......................	86,158 14
Tax on bank-stock...........................	878,185 41
Tax on writs	121,698 58
Tax on loans	140,715 80
Tax on premiums	283,136 22
Bonus on charters.....	84,916 90
Notary-public commissions	10,125 00

Collateral inheritance tax	$461,465 48
Accrued interest	81,874 71
State tax	502,025 48
Fees of office	52,478 51
Licenses on occupations, etc	911,871 28
Commutation of tonnage-tax	460,000 00
Interest	219,874 71

DISBURSEMENTS.

Judges	$379,748 32
Associate judges	81,814 15
Salaries	72,587 42
Charitable and reformatory institutions	906,102 10
Department expenses	99,826 21
Public printing and binding	151,559 95
Geological survey	37,000 00
Supplies and contracts	18,487 22
Department contingent expenses	40,392 81
Costs in suits against delinquent dealers	51,796 08
National Guard	227,523 46
County superintendents	88,418 87
Soldiers' orphan schools	324,985 08
Normal schools	94,648 11
Common schools	991,214 69
Mine-inspectors	86,278 90
Public light	10,695 98
Penitentiaries	216,425 00
Legislative contingent	10,000 00
Legislative salaries	523,875 46
Interest on public debt	819,951 25
State loans redeemed	259,900 00
State loans purchased	374,600 00
Premiums on same	49,251 37
United States consols purchased	1,400,000 00
Premiums on same	324,875 00
Interest on Agricultural College land-scrip bond	30,000 00

Education.—The following are statistics of the schools for the year ending June 2, 1884:

Number of school districts in the State	2,241
Number of schools	19,919
Number of graded schools	8,845
Number of superintendents	108
Number of male teachers	8,559
Number of female teachers	13,905
Whole number of teachers	22,464
Average salaries of male teachers per month	$38 47
Average salaries of female teachers per month	29 39
Average length of school term, in months	6·74
Number of pupils	966,039
Average number of pupils	635,678
Cost of tuition	$5,403,636 41
Cost of building, purchasing, and renting	1,686,132 74
Cost of fuel, contingencies, debt, and interest paid	2,373,452 66
Total cost of tuition, building, fuel, and contingencies	9,463,221 81
State appropriation	1,000,000 00
Estimated value of school property	31,886,098 00

STATE APPROPRIATIONS FOR THE YEAR.

For the common schools	$1,000,000
In aid of normal-school students	40,000
Salaries of the county superintendents	86,000
For the Cornplanter Indians	800
Total	$1,126,800

The following tabular statement presents the contrast between 1873 and the present time:

YEARS.	Number of schools.	Number of teachers.	Registered pupils.	Cost of tuition.
1873	16,305	19,089	834,020	$4,325,797 47
1883	19,919	22,464	966,039	5,403,636 41
Increase	3,614	3,375	132,019	$1,077,838 94

The salaries of teachers have decreased.

Divorce.—On this subject the Governor submits the following views:

> Our Commonwealth has of late years obtained notoriety as a place where decrees of divorce may be easily and quickly obtained. Persons desiring to relieve themselves of the duties and restraints of marriage have found that the laws of the State of Pennsylvania present desirable facilities for the accomplishment of their purpose. Our courts have come to exhibit a record of decrees annulling the marriage relation startling in their number and history, and that must shock the conscience of all thoughtful people, as it has already been the occasion for reproach by the citizens of other localities. It is undoubtedly a fact susceptible of proof by judicial records, and within the knowledge of every attorney in general practice, that parties in other States desiring to lay aside irksome conjugal ties acquire a temporary residence here for the sole purpose of obtaining the expeditious relief which the liberal divorce laws of our Commonwealth permit. Those laws, and the practice obtaining under them, seem to be based upon the principle that divorces are a thing to be facilitated by the State and their procurement made easy, prompt, secret, and cheap. Some of those provisions do actually seem to invite discontented husbands and wives to seek the dissolution of their marriage ties. What other construction can be put upon the law that allows divorces for desertion extending for the period of two years, but permits proceedings to be instituted within six months after such desertion began? In other words, application is permitted to be made when the offense is only one fourth consummated, in anticipation of its finally reaching the extent required by law. Each of the successive acts of 1847, 1850, 1854, 1855, 1858, and 1859, has been either an extension of the causes of divorce or of the jurisdiction of the courts as to persons or subject-matter. At the same time, the rules of practice, following the bent of legislation, have made smooth and easy the processes that bring death to the holy institution which is at the base of all private virtue, social safety, and national hope.
>
> There are two lines upon which the Legislature may move in proceeding to correct this abuse. One is in providing a more rigid and less expeditious divorce law, and the other such legislation as will tend to prevent hasty and ill-assorted marriages.

Gubernatorial Recommendations.—The Governor recommends the establishment of a State Board of Health; the creation of a commission to revise the bituminous mining laws, similar to the one appointed at the last session to revise the anthracite mining laws; "some legislative enactment to prevent, in capital cases, the great lapse of time that so often intervenes between the commission of the offense and the punishment of the offender"; the fixing of a definite salary for the Secretary of the Commonwealth and the Attorney-General, those officers being now paid partly by fixed salaries and partly by fees; an amendment to the Constitution abolishing payment of the poll-tax as a qualification for voting; legislation regulating the sale of intoxicating liquors; the passage of a civil-service law similar to those of New York and Massachusetts. Relative to the pay of members of the Legislature, he says:

> The act of 1874 fails to carry out the spirit and intent of the Constitution, and continues the *per diem* idea, if not in all its provisions, at least in that part of it giving members ten dollars a day for each day not exceeding fifty that the Legislature extends its session beyond one hundred days. The result has been to bring scandal and reproach upon the Legislature among the people, who have not hesitated to suspect that the prolongation of its sessions by the General Assembly to the utmost limit of time for which compensation could be claimed, has been for the sole purpose of increasing its pay to the last dollar it may lawfully take from the Treasury.

Speaking of the liquor-traffic, the Governor states the number of licensed drinking-places in Philadelphia at 6,858, being one for every 125 of the population! He also urges upon the Legislature the passage of an adequate act to carry into effect the constitutional provisions against discriminations by railroad companies, characterizing as delusive the statute of 1883 on this subject.

Political.—The Republican State Convention met in Harrisburg on the 16th of April, chose delegates to the National Convention, nominated candidates for Presidential Electors and Congressman at large, and declared James G. Blaine its choice for presidential candidate. Its platform contained the following:

> We unqualifiedly approve and demand the continuance of that system of protection to home industry which has proved itself to be the basis of national independence, the incentive to industrial skill and development, and the guarantee of a just and adequate scale of wages for labor; and we denounce all attempts to reduce the rates of tariff below the level which will accomplish these results.
>
> While reviving no past differences, and earnestly seeking good-will between all portions of our common country, we insist that the guarantees of the constitutional amendments shall be faithfully observed; we demand that every citizen shall be protected in his right to cast a free ballot and have it honestly counted; and we denounce every attempt to deny or abridge this right, whether by fraud or violence.
>
> As a dual standard of the precious metals can only be maintained by the concurrence and co-operation of the commercial nations of the world, and as this can not be had at the present time, and as the attempt to maintain such a standard by the United States alone is calculated to produce serious complication in our monetary system, it is earnestly recommended to our Senators and Representatives in Congress that they urge such legislation as will suspend the coinage of the standard silver dollar until united action with the other nations can be had.
>
> We also recommend the retirement of the trade-dollar in exchange for standard dollars, without increasing the monthly issue of the latter.
>
> We commend every effort to sustain and promote thorough civil-service reform in all departments of the national and State Governments.

The Democratic State Convention, held for similar purposes, met in Allentown on the 9th of April, and declared Samuel J. Randall its choice for presidential candidate. The platform adopted by it contained the following:

> We favor a tariff for revenue, limited to the necessities of the Government economically administered and so adjusted in its application as to prevent unusual burdens and encourage productive industries at home and afford just compensation to labor, but not to create and foster monopolies; and to this end we favor the abolition of the internal revenue system of taxes, and such adjustment of the existing tariff duties as will be consistent with these principles.
>
> Every legitimate effort of labor to better its condition, advance its rewards, and protect its rights, commands the sympathy and support of the Democratic party. The importation under contract of foreign pauper labor is an evil which should be remedied by judicious legislation.
>
> The refusal of the Republican members of the Legislature to agree to a just apportionment of the State was a flagrant violation of the Constitution, for unworthy partisan purposes. We denounce their course; we approve the determination of the Democratic Governor, Representatives, and Senators to insist upon an honest and fair apportionment, and we commend the present Democratic State administration for its maintenance of the Constitution, enforcement of the law, and honest and capable discharge of public duties.

On the 4th of November the Republican ticket was elected. The vote for Presidential Electors was as follows: Republican, 473,804; Democratic, 392,785; Greenback, 16,992; Prohibition, 15,283. For Congressman at large, E. S. Osborne, Republican, received 476,240 votes; W. W. H. Davis, Democrat, 401,042. The Greenback vote was 9,684; Prohibition, 10,471. Of the district Congressmen chosen at this election, 18 are Republicans, 8 Democrats, and one a Greenbacker. The Legislature of 1885 consists of 31 Republicans and 11 Democrats in the Senate, and 141 Republicans and 60 Democrats in the House.

PERSIA, an empire in Asia. The Government is an absolute monarchy, based on the precepts of the Koran, resembling very nearly in constitution that of the Turkish Empire. The Shah, or Emperor, claims absolute obedience as the vicegerent of the Prophet. Under him the Government is carried on by a ministry composed of the Vizier-i-Azem, who directs the foreign policy and acts as military commander-in-chief; the Ameen-ed-Doulah, or treasurer; and five subordinate ministers, created after the model of European cabinets. The country is divided into fifteen provinces, each governed by a Beglerbeg, who is usually a prince of the royal family. The towns and villages elect their own magistrates.

The reigning Shah is Nassr-ed-Din, born Sept. 4, 1829, who succeeded his father, Shah Mohammed, Sept. 10, 1848. He is the fourth sovereign of the Kadjar family. (For statistics of area and population, see "Annual Cyclopædia" for 1883.)

Finances.—In 1882 the receipts were about 40,000,000 francs in money and 7,000,000 francs paid in kind—together 47,000,000 francs, of which 38,000,000 francs came from direct taxes—such as the land tax, personal tax, patents, etc.—and 8,840,000 francs from customs. The expenditures were about 45,000,000 francs, of which 19,000,000 francs were for the army, 9,000,000 francs for the courts, 6,000,000 francs for the clergy, etc., 2,000,000 francs for gifts to great families, the Afghans, and others, 700,000 francs for foreign affairs, 1,500,000 francs for the other ministries, and 300,000 francs for colleges. There is no debt.

Commerce and Industry.—The imports amount to about 2,500,000 tomans (1 toman = $2.25), and the exports to 1,250,000 tomans. Formerly the exports largely exceeded the imports; but, since a taste has sprung up among the wealthy for European dress articles and other manufactures, the balance of trade is as largely the other way. The main trade is with Russia in the north and with Great Britain in the south. The imports from both countries are about equal, though the Russian trade is rapidly growing. English cotton cloths constitute nearly half of the total imports. The Indian tea has driven out the Russian imports of this article. The sugar imports come from Marseilles and Russia; glass and porcelain from England, Austria, and China; candles, petroleum, iron, and iron manufactures from Russia; and silk fabrics from France. The exports of silk from Persia, which declined in consequence of the silk-worm disease after 1868, have not attained their former magnitude, as the demand for Persian raw silk is less, though the cultivation has lately increased. Opium and tobacco grown in Persia are of remarkable narcotic strength. The cultivation of the poppy was enormously extended when Persian opium began to be shipped in English vessels to China. The Persian famine of 1871-'72 was largely due to the unwise conversion of the grain area into poppy-fields. The Indian Government attempted without success to choke off the Persian competition by forbidding the transit of opium through India. In 1879 the importation of the Persian product in the Chinese treaty ports amounted to 4,000 chests of 125 pounds each. In 1882 it rose to 8,000 chests, about one tenth the quantity of the Indian imports. Persian opium is also exported, mixed with oil, to England. A good crop furnishes for export from 6,000 to 8,000 chests of 140 or 150 pounds, worth from $450 to $500 a chest. In recent years an insect has damaged the plants. The tobacco grown in the dry mountain-regions is in great request for the water-pipe throughout the Orient. A Turkish tobacco for cigarettes is now grown on the shores of the Caspian. Wheat is raised in sufficient quantity to furnish a surplus for export to the Caucasus, Bagdad, India, and sometimes to England. Rye is cultivated in the mountainous parts. Millet is grown everywhere, and rice in marshy districts, such as the borders of the Caspian Sea, in such quantities as to produce a considerable surplus for export to Russia. Lentils and beans are very prolific, and constitute a favorite article of food. The melons and cucumbers are remarkably fine and juicy. Sweet wines and raisins are produced in large quantities, and dates, which are exported mainly to America. In many parts of Persia agriculture is only made possible by artificial irrigation. Some of the works are marvels of engineering skill. The Persians are skillful in the extraction of the essential oil of the rose and the jasmine. The essence of rose is largely exported to India. Cotton is raised extensively, though the separation of the seeds is not accomplished successfully. Madder grows wild in abundance. Indigo is raised, and is also imported from India. Saffron, which was formerly cultivated extensively, has been supplanted by the aniline dyes. The Shah, with the object of preserving the reputation of the carpets, shawls, and embroideries of Persia, recently interdicted the importation of aniline colors. The products of the artistic handiworks still form a large proportion of the Persian exports, although artistic taste and invention and manual skill have greatly declined in recent times. The country has been stripped in a great measure of the choice productions of former generations which would serve as models. Armenian and Persian brokers still scour the country to fill the warehouses of Constantinople, the market from which Europe supplies itself with Oriental curiosities. Embroideries in gold, silver, and silk are still produced in great number and of admirable designs. The gold and silver wire is imported from Germany. Persian carpets are also still good in quality, design, and, except where aniline dyes are used, in color, when compared with Western makes, though much inferior to the old handiwork. Engraved talismans of carnelian, quartz, and chalcedony, steel vases inlaid with gold, others of brass engraved with arabesque patterns or with perforated designs, the mosaics of Shiraz, and gold and silver filigree, are other articles that sustain Persia's reputation for ornamental art. Decorated weapons and armor are made in Ispahan, but are not comparable with the ancient Khorassan work. In enameling, also, only small objects of slight merit represent the profuse and beautiful work of past generations. The mineral treasures of Persia are copper, iron, lead, arsenic, antimony, cobalt, manganese, alum, borax, saltpeter, blue vitriol, etc. Gypsum is found everywhere, and is used in building for stucco and ornaments. The supply of salt in the steppes is inexhaustible. Coal is found in vast beds, which can be worked without difficulty. The Persian marble is remarkable for the beautiful blending of white, green, and pink colors. The mines of Persia are but little worked, owing to the lack of capital and knowledge and of the means of transportation. The only precious stone is the turquoise, which is apt to lose its brilliant blue hues and turn green, and is less in demand since the Vienna imitations proved so deceptive. The pearl-fisheries of the Persian Gulf are richer than all others in the world. The principal beds are on the Arabian side. The fisheries of the gulf, conducted by Russian Armenians, produce large quantities of edible fishes, besides about 825,000 kilos of caviare and 2,200 kilos of isinglass. The animal products exported from Persia are goat and sheep skins of poor quality, and hair of the Angora goat.

Political Conditions.—An improvement in the political administration has been noticed in late years, particularly since the visits of the Shah to Europe. The governors can no longer practice oppression and extortion unchecked, because the Shah watches them closely and permits his subjects in urgent cases to appeal to him directly through the telegraph. The absence of a record of land and water rights, and the arbitrary interference of the priesthood, preclude a strict control. By marrying royal princesses to the heads of clans they have been attached to the dynasty and brought to accept a central rule. Some of the more unmanageable khans have been put out of the way by different means. The establishment of Persian as the only official language, taking the place of the Tartar, Kurdish, and Arabic tongues in various districts, has helped to centralize the administration. There is more security than formerly, and districts that could only be visited with passports and letters to the local chiefs, can now be traversed with entire safety.

The Russian Advance.—The political and military power of Russia in Central Asia, and Russian commercial interests, are interdependent and expand together. The occupation of Merv was followed by a large development of trade, and when Sarakhs was occupied, a place that is situated on the natural commercial route to India at the most advantageous point, the commercial relations with the neighboring parts of Persia and with Afghanistan were greatly strengthened. The expansion of Russian interests in Afghanistan, and of Russian influence among the people, which the Ameers of Cabul and Candahar, who are in the pay of England, were powerless to check, made a new "rectification of the Persian frontier" desirable. The Shah, for the sake of Persian independence, now seriously threatened by the growth of Russian power on the east, as well as on the north, and the political influence gained by the Czar in Persia, determined to resist further encroachments. The negotiations to secure a strip of territory on the eastern edge of Iran, and a proposal to lease Meshed for an annual payment of 80,000 tomans, met with refusals, with which the Russian Government expressed itself satisfied. Meshed, it was explained, was a sacred place, containing the tomb of Iman Reza, the Shiite apostle. Prince Mahomed Taky Mirza, the brother of the Shah, was dismissed from his post of Governor of Meshed at the same time. He is supposed to have been a friend of Russia. Several ministers were dismissed during the year, with the result of emancipating the Government to some extent from Russian influence, yet without inviting a breach of the friendly relations with the Czar's Government. The Russians have offered to aid in improving the internal communications of Persia by constructing a railroad from Reshd to Teheran, with the prospect of extending it to the Persian Gulf. Rival English projects are the improvement of navigation in the Karun, and a railroad between Teheran and Bagdad. The German Government established an embassy at Teheran in the autumn.

PERU, a republic in South America. (For details relating to area, population, etc., see "Annual Cyclopædia" for 1883.)

Government.—The President is Gen. Iglesias. The Cabinet is composed of the following ministers: Minister of Justice and President of the Council, Señor Mariano Castro Zaldivar; Minister of Foreign Affairs, Señor Baltasar Garcia Urrutia; Minister of the Interior, Señor Ignacio de Osma, Prefect of Lima since the evacuation; Minister of War, Señor Francisco Garcia Leon; and Minister of the Treasury, Señor Manuel Golup. The United States Minister at Lima is Capt. S. L. Phelps. The Minister Resident at Washington is Señor J. F. Elmore; and the Consul at New York, J. C. Tracy.

Public Indebtedness.—On Jan. 1, 1882, the foreign debt of Peru stood as follows:

Six per cent. loan of 1870	£11,141,560
Five per cent. loan of 1872	21,546,749
Overdue interest thereon	7,466,511
Ecuador bonds	7,706
Pisco-Ica Railroad bonds	264,080
Miscellaneous foreign debts	9,445,190
Total	£49,871,707

The New Tariff.—The necessities of the Government have been such as to demand the establishment of a new customs tariff, by which the duties on all imports and on most articles of exportation were considerably augmented. The ad-valorem system was adopted.

The duties are payable in silver, and there is an additional 10 per cent. imposed on all articles of import, which is paid in the paper currency of the country, and is set apart for monthly incineration in the public squares of Lima, in order to reduce the volume of paper money in circulation. This sum reaches the figure of about $300,000 paper, or about $20,000 in silver.

So numerous, influential, and pressing have been the complaints of merchants with respect to the value given to their goods for this ad-valorem duty that the Government consented to the appointment of a commission, of several foreign and Peruvian mercantile men of Lima, and three of the customs officers of superior rank, for the purpose of a thorough revision. This work was under way in December.

American Trade.—These are the statistics of trade between the United States and Peru:

IMPORTS OF MERCHANDISE FROM PERU INTO THE UNITED STATES, AND EXPORTS FROM THE UNITED STATES TO PERU.

	IMPORTS.				EXPORTS.
Year ended June 30.	Guano.	Nitrate of soda.	Brown sugar.	Total.	
	Tons.	Pounds.	Pounds.	Dollars.	Dollars.
1875..	17,045	41,644,264	503,700	1,291,285	2,448,657
1876..	17,864	85,488,493	13,200	1,426,048	1,001,723
1877..	18,481	29,221,104	16,867	1,479,511	1,239,006
1878..	20,982	80,452,962	257,660	1,581,591	975,507
1879..	15,087	68,992,980	2,018,047	1,857,859	1,298,991
1880..	400	14,978,850	2,121,244	861,808	907,608
1881..	....	24,676,514	....	760,556	98,795
1882..	20,522	114,176,044	2,250	3,029,676	588,823
1883..	129	102,394,360	1,600	2,526,918	467,860
1884..	2,052	105,891,698	96,900	2,077,645	1,048,902

European Trade.—In 1883 the imports from Peru into the United Kingdom were $10,951,941; exports thence, $4,318.070. The imports into France were $5,808,199; exports thence, $1,829,265.

Events of 1884.—In February an arrangement was perfected between Chili and Bolivia, by which a truce was established for three years, but with the condition that Chili would allow no hostile demonstrations on the part of Bolivia toward Peru. This was interpreted as implying a decisive denial to the desires of Bolivia regarding Tacna and Arica, and furthermore as a veto to any attempt that might be made by the former ally of Peru toward gaining an outlet to the sea by way of Arequipa and Mollendo. On February 8 Gen. Campero invited the notables and heads of political parties to assist at a national conference to determine whether to accept the truce arranged at Santiago, or continue the war. At the same time, northern Peru was greatly disturbed owing to the reappearance of montaneros. The latter, defeated at Llollon, returned by way of Huamachuco, entering Trujillo, which was without a garrison. While Col. Alarco operated against the marauders at Cajamarca, Salaverry was occupied by montaneros under Puga.

On Feb. 14 a water-spout caused damage at Arequipa, the loss being estimated at $500,000. Several persons were drowned.

On February 22 the representatives of the various European powers held a conference at Lima, to prepare a protest against one of the clauses of the treaty of peace. The French minister was chosen to present the protest to the Government. The protesting powers decided to follow the programme presented by England and France.

On March 1 the Peruvian Congress convened at Lima, and Gen. Iglesias took the oath of office as Provisional President of the Republic.

On March 10 the Constituent Assembly ratified the treaty of peace with Chili.

By March 20 the following foreign nations had formally recognized the government of Gen. Iglesias: Ecuador, Bolivia, Hayti, Costa Rica, Honduras, Nicaragua, the Swiss Confederation, Denmark, and Sweden, besides the Holy Father.

On the resignation of the Barrinaga Cabinet, the President formed a new one early in April.

Recognition by Great Britain and France followed early in May. On May 27 Mr. Elmore, the Peruvian minister at Washington, was officially received by President Arthur, to whom he presented his credentials.

On May 29 the ports of Loma and Chola were closed by a Government decree.

On July 8 Iglesias resigned the presidency, and ordered a general election for President and Vice-President, and also for Senators and Deputies of the new Congress. At the same time Gen. Iglesias withdrew his forces from the provinces and concentrated them at Lima.

On July 24 Gen. Cáceres proclaimed himself Provisional President of the Republic at Tarma. By the middle of August it had become evident that peace negotiations between Iglesias and Cáceres had finally failed, and that the respective forces would soon come into collision at the very gates of the capital, where Gen. Iglesias was in command of a well-equipped little army of about 5,000 men. While Cáceres was moving on Lima, Iglesias strengthened his hands politically by a combination with the Piérola element. On August 27, at 4 A. M., Cáceres and his little army made the attack and met with a disastrous and bloody repulse, leaving 500 prisoners in the hands of the Government troops, but effected his escape to Pisco.

Cáceres entered Arequipa early in October at the head of 1,800 men. The Government troops under Commander Gonzalez were meanwhile victorious at Huaura, defeating and dispersing 300 montaneros, and capturing ammunition, arms, and baggage. After resting, he occupied Huacho on October 2.

Gen. Iglesias continued the arduous task of reorganizing the government of Peru. Operations against the montaneros were actively prosecuted in November and December. The central districts were entirely pacified. The ferocious and sanguinary disposition of Cáceres was acquiring a deeper hue daily. His shooting of upward of twenty of the poor, ignorant Indians that he had forced into service, because they demanded payment, threw a gloom of terror over Arequipa almost equal to that which occurred in the army of the center, which Piérola had confided to him after the capture of Lima, when Cáceres, turning traitor to make himself President, shot forty cavalrymen in Matucana, to signalize his accession to power.

A heavy shock of earthquake was felt at Lima at 7.13 A. M. on November 22. Its motion was from southwest to northeast. There was no unusual electric disturbance. Clouds of dust were visible from three to five miles from Callao, where portions of the rock were shaken down on the beach. The walls of many houses were cracked, and some thrown down.

PHARMACY. The discovery and introduction of cocaine hydrochloride as a local anæsthetic was the important event in scientific pharmacy during 1884. A steady advancement in all branches of the art is apparent.

Colleges.—A bill incorporating the Louisville School of Pharmacy for Women was passed by the Kentucky Legislature during the early part of the year. The School of Pharmacy connected with Purdue University, Lafayette, Ind., was successfully inaugurated. The Cleveland School of Pharmacy, on account of the stringent pharmacy law adopted in Ohio, has introduced a higher course of studies, and now ranks with the other colleges of pharmacy. An entrance examination was demanded for the first time this year from students entering the New York College of Pharmacy.

Legislation.—The following States have pharmacy laws: Connecticut, Delaware, Georgia, Illinois, Kentucky, Maine, Missouri, New Hampshire, New Jersey, New York, North Carolina, Ohio, Rhode Island, South Carolina, West Virginia, and Wisconsin. The law in Ohio was enacted in March, 1884, while that of New York was signed in May. Local laws are in force at Philadelphia, San Francisco, Buffalo, New York, and Brooklyn.

Associations.—The thirty-second annual meeting of the American Pharmaceutical Association was held at Milwaukee, Wis., beginning on August 26. Its sessions were continued during three days. John Ingalls, of Georgia, was chosen President, and John M. Maisch, of Pennsylvania, Permanent Secretary. The drug-clerks of many of our larger cities have formed themselves into societies for mutual protection and scientific advancement. The "New York Protective Association of Drug-Clerks" was organized in March. In October the "Orleans Drug-Clerks' Association" of New Orleans came into existence.

Trade Organizations.—The "National Retail Druggists' Association" convened at Milwaukee, Wis., on August 25. The "Campion plan" was approved. Henry Canning, of Massachusetts, was chosen President, and J. W. Colcord, of Massachusetts, Secretary. The ninth annual meeting of the "National Wholesale Drug Association" was held at St. Louis, Mo., beginning on October 22. The "Campion plan" and "Rebate plan" were very thoroughly discussed, and the former received the approval of the Association. C. F. G. Meyer, of Missouri, was chosen President, and A. B. Merriam, of Ohio, Secretary.

Trade Relations.—For the better protection of the trade interests of the retail druggists, various plans have been suggested and adopted. Early in the year the New York Druggists' Union was organized, shortly after a Brooklyn Drug Union was formed, and soon, throughout the country, city and county associations were organized for the purpose of maintaining full prices for proprietary goods. At the solicitation of the retailers, many of the manufacturers combined, and the "Campion plan" was adopted. Its essential features are, that by the united action of the manufacturers no goods can be sold by any jobber, nor by any retailer, except at a fixed schedule of prices. Any one violating the rules of the Association was cut off and thereby prohibited from receiving goods from those in the plan. In this manner the retail druggists thought themselves able to control the prices of various proprietary articles. For a time the plan promised success, but, as many of the leading houses have withdrawn from the plan, its future can not be accepted as assured.

Literature.—Among the important books published during the year were: "A Companion to the United States Pharmacopœia," by Oscar Oldberg and Otto A. Wall, and a third edition of "The National Dispensatory," by Alfred Stillé and John M. Maisch. This book was prepared from the recent editions of the Pharmacopœias of the United States, Germany, France, and Great Britain, all of which have recently been revised and have been published since 1880. In April was published the "New York and Brooklyn Formulary," a book containing unofficinal formulas that are always in a dispensing pharmacy. It was the joint production of committees appointed from the different pharmaceutical organizations of both cities. A journal entitled "American Drugs and Medicines," devoted to the historical and scientific discussion of the botany, pharmacy, chemistry, and therapeutics of the medicinal plants in America, was begun in March, in Cincinnati, O.

PHILLIPS, WENDELL, an American philanthropist and orator, born in Boston, Mass., Nov. 29, 1811; died there, Feb. 2, 1884. His father was John Phillips, the first mayor of the city of Boston. Wendell was graduated at Harvard College in 1831, entered the law school at Cambridge, and was admitted to the bar in 1834. His sympathies were strongly roused by the hard measures meted out to the early abolitionists, and particularly during the Boston mob, headed by gentlemen of property and high standing in the community, in October, 1835, when the chief of the abolitionists, William Lloyd Garrison, barely escaped with his life. Mr. Phillips thereupon joined heart and soul with the abolition cause, and went so far as to throw up his law practice in 1839 because he could not conscientiously swear allegiance to the Federal Constitution. In December, 1837, a meeting was called in Faneuil Hall to consider and condemn the murder of Rev. Elijah P. Lovejoy at Alton, Ill., who fell the month previous in defense of the freedom of the press. The pro-slavery feeling in Boston, at that date, was very strong, and Attorney-General Austin, who spoke at the meeting, asked whether Lovejoy had not died "as the fool dieth." This roused to indignant protest the youthful orator, who rose and delivered one of the most powerful speeches ever heard in Faneuil Hall, and rebuked the craven spirit of so many that were willing to crush the liberty of the press and trample under foot the rights of humanity. From this date till 1861 he was a prominent leader and the most popular orator among the abolitionists. Holding that the Constitution was an unrighteous compact between freedom and slavery, Mr. Phillips refused to recognize its authority by voting, or in any other manner. He advocated disunion as the only way that he could discover out of the difficulties of the slavery question, and when the civil war broke out he favored sustaining the Government, inasmuch as the end must be freedom to the slave. In 1863–'64 he advocated arming, educating, and enfranchising the freedmen, and, having become President of the Anti-Slavery Society in 1865, he continued its existence in behalf of the freedmen at the South until the adoption of the fifteenth amendment to the Constitution. As this settled the question at issue, the society was dissolved in April, 1870. During this latter year he was the Temperance and Labor Reform candidate for Governor of Massachusetts, and received nearly 20,000 votes.

WENDELL PHILLIPS.

Mr. Phillips's philanthropic labors were widely extended. He warmly advocated woman suffrage, prohibitory liquor laws, and prison reforms, and earnestly opposed capital punishment. In January, 1875, he made a powerful speech in Faneuil Hall in support of President Grant's Louisiana policy, and in March of the same year, in another speech, he set forth his views on finance. Being an accomplished scholar as well as an eloquent speaker, he was frequently called upon to deliver lectures on popular topics. The more notable of these were on "The Lost Arts" and "Toussaint l'Ouverture," and funeral eulogies on Theodore Parker and John Brown. There is no complete edition of his speeches, several of which have been issued as pamphlets and widely circulated in the United States and in England. A partial collection was published in Boston (8vo, 1864; 12mo, 1869). Other writings of his are to be found in numerous periodicals and newspapers.

PHOTOGRAPHY, AMATEUR. Amateur photography properly precedes photography as a profession. Daguerre, the first amateur, was a scene-painter, and many valuable improvements in photography have been due to amateurs. The reason of this is not far to seek. Photography is yet in its infancy. Possible discoveries lurk on every side. The professional photographer, using it as a means of livelihood, follows that which is sure, finding it imprudent to risk time and money in experiments that may prove fruitless; but it is this chance, this uncertainty, and this hope, that lure on the amateur. An amateur photographer in this country, the late Joseph Rayner, had over $3,000 worth of apparatus; and this, it is said, is not an unusual amount for an enthusiast of long standing. That which has done most toward the recent revival of amateur photography, and to render it popular, has been what is known as the "dry process," the use of gelatinized plates. This, in its present form, is due to Dr. R. L. Maddox, an English amateur, and has been in use only a few years. Previous to this time, sensitive plates prepared with collodion emulsion had been much employed; among others, by Henry J. Newton, of New York, who in 1879 exhibited twenty instantaneous views made with an emulsion several years old. The history of photography has preserved the interesting experiments in the use of gelatine, the flow of which is as even as that of collodion. Being much cheaper than collodion, plates sensitized by gelatine were immediately adopted. These at once brought photography within the scope of people that formerly were deterred, not only by the disagreeable work involved, but by the necessity of being something of a chemist as well. The convenience of the gelatinized plates for the amateur lies in the fact that they are prepared by manufacturers, and can be bought in compact packages to be used anywhere at any time. After the negative is taken, no fixing is required; the plate may be put away, to be developed at convenience. Many amateurs do not develop their own plates, but send them to the professional photographer, who also prints them. The experiments now made in the preparation of sensitized paper are also greatly in the interest of the amateur. This paper, purchased in rolls, is marked off to the required size and is inserted in the camera. It is adjusted by a crank, and the image when taken passes into a corresponding roll on the other side, and is not necessarily removed until the entire roll is used. If desired, the image at another time can be floated on glass, which then becomes the negative. What is known as the "blue print" is much used by amateurs. In this case the paper (ordinary writing-paper will answer) is sponged off with a solution of oxalate of iron and carefully kept in the dark (between the leaves of a book will answer) until used. This is now sensitive and receives the image, although no image is visible. When taken from the camera, it is held for a few moments to the light, and is then placed in a bath, or is sponged off with a solution of red prussiate of potash, which immediately brings the image in pleasant blue tints before the eye. The simplicity and cheapness of this process commend it to the amateur. It is to be remarked that the two solutions can be kept for a long period, and are not injured by exposure to light. For immediate use, another method commends itself. To half an ounce of red prussiate of potash add three ounces of water. In another solution add two ounces of water to half an ounce of citrate of iron and ammonia. Mix together, and carefully filter, or allow the bottle to stand for a few moments carefully excluded from the light. With a soft brush, cover the paper to be used with the mixture. After the photograph is taken, throw the paper into a bath of clear water, and expose to the light. The image seen in faint purplish tones now appears in blue tints. If card-board is used instead of paper, the photograph is already mounted. This mixture loses its sensitiveness in a few weeks.

For the amateur's use, complete photographic outfits have been devised; and for out-door work cameras are reduced to pocket-dimensions. In summer, the amateur stows away his equipment; and if he sees any object or view that attracts his fancy, in a few seconds he transfers it to his plate, puts his plate away, folds up his camera, and his work is over until he is ready to take it up again.

The success of the amateur as a photographer is a more personal matter, and independent of the mechanical methods employed. The first radical distinction between the amateur and the professional photographer is, that the amateur expends his efforts in getting a good negative. This is never retouched. The success of the professional photographer, on the other hand, lies in great measure on his working up his negative. The choice of subject, arrangement, composition, one may call it, of the amateur, is effective or not as he brings to bear upon it those artistic principles which would govern him in the arrangement of a picture, both as to composition and *chiar-oscuro*. The differences to be observed in the work of amateurs are directly referable to their differences in artistic feeling. In this respect, the photographs made by artists have a particular value. By virtue of their training, they select the most picturesque materials and view of the subject. This corresponds to composition. The focus and length of exposure are also adjusted with a view to the artistic effect. The professional photographer, in taking either a person or other subject, adjusts his focus to bring out the lines and details most sharply. The artistic amateur, on the other hand, prefers soft lines, the blending of masses, as it were, not the prominence of details. Accordingly, he adjusts the camera a little out of focus and approximates the results for which he would strive with a brush. One of the most successful of amateur photographers, a lady, by training an artist, observes not only this rule in her work, but places her subjects in shadow and takes her pictures, not in the full light that the professional photographer seeks, but in a modified light. Her pictures are remarkable not only for their picturesqueness but for that sense of mystery which is one of the fascinating qualities in art, and which is also not incompatible with the truths of photography. In this sense, photography appeals to the artist. The use of the camera for furnishing memoranda for the artist is invaluable, and has become extensive. The conformation of a tree, a bit of suggestive landscape, the details of architecture, a rapidly changing sky, or the pose of a figure, the camera will more quickly and accurately preserve than any sketch. An English artist in summer takes his models into the country and poses them in the landscape as suggestions for studio-pictures. Photography appeals to an ever-widening class of people. The traveler takes with him his pocket-camera, and preserves any souvenir of travel that he may desire. Instantaneous photographs may even be caught from express-trains. Through photography, men of various professions can look after their interests at home or at remote distances. A gentleman of New York city, who has an orange-grove in Florida, keeps note of all that is going on by means of a series of small glass slides. Each improvement the sun sketches for him, and through a microscope he is even able to trace the growth, the budding, and grafting of any special tree. As photography has been freed from its drudgery, many women take it up for their own amusement. Several women of leisure in New York are accomplished photographers. Organizations are springing up in different parts of the country. The Society of Amateur Photographers, of New York city, of which Frederick C. Beach is president, has eighty-five members, and holds its meetings on the evening of the second Tuesday of each month. The purposes of the society can be best set forth by giving the routine of an evening's proceedings. The letters read show the larger relations of the meeting. One from England proposes an international exchange of lantern-slides, that the scenery of each country may thus be made familiar to the other. Other letters touch upon the exchange of lantern-slides between the various local societies, that each may keep abreast of the general progress of amateur photography. The different committees report on the tests and experiments that the society is carrying on. One considers the relative durability of the gelatinized plates prepared by manufacturers. Another reports the tests made touching on the best light for developing negatives, pending the electric lamp which Mr. Edison is experimenting on in the society's interest. Following these reports is the exhibition of a canvas-hooded camera by Mr. Walter Clark, an artist and amateur photographer. This camera is constructed on the principle of the telescopic packing-cases. A spring throws up and fastens the canvas hood. The camera below is in two sections, an upper and under. Each has an aperture admitting light, and the lens has two corresponding positions. The upper aperture is just open, the lower being covered with a black disk, since the sensitive plate is already in position. The upper aperture receives the image, which is reflected on a mirror placed at an angle of 45°, and is again reflected on a ground-glass plate in the top. By this double reflection the operator sees the image for the first time right-side up, a valuable improvement on the inverted image of the ordinary camera. A button regulates the focus. When the operator perceives his image as he desires it, a spring causes the lens to fall to the lower aperature, which is now thrown open, and the automatic shutter previously adjusted regulates the time of exposure. This camera is especially designed for out-door work, and more particularly for taking animals or other objects in motion; since it can be carried in the hand, needing neither tripod nor operator's cloth, and can be adjusted in the fraction of a second. George H. Ripley in turn exhibits his improvement on the automatic shutter for instantaneous views, which permits a longer time for exposure. This is invaluable to the amateur, since, if he is alone and desires a figure in his landscape or interior, by means of an invisible silk thread he can photograph himself. These meetings usually conclude with an address on some special subject, or with an exhibition of lantern-slides. This gives an idea of the general scope of these societies, which are found in Boston, Philadelphia, Lowell, Haverhill, Cleveland, Columbus, Chicago, and Cincinnati. These societies are all in their infancy. That of Cleveland is composed altogether of young men not yet out of school. As yet, these societies have no journal devoted to their interest; but the "Photographic Times," edited by J. Traill Taylor, with the co-operation of W. J. Stillman and Charles Ehrman, gives much consideration to amateur photography.

PHYSIOLOGY. Physiological Experimentation.—An indication of the direction in which physiological experiment may be pursued to advantage in the future is given by Prof. Tyndall in considering those diseases of which a single attack secures immunity against all future attacks. This phenomenon, hitherto unexplained, may be accounted for under the germ theory of disease by supposing the system—the soil in which the parasite is developed—to be exhausted by the first crop of some ingredient necessary to the growth and propagation of the microbe. M. Bouley has drawn attention to the fact that, in the experimental cultivation of the microscopic plant *Aspergillus niger* by M. Raulin, the omission of potash from the culture-liquid sufficed to make the produce fall to one twenty-fifth of the amount collected when potash was present. The addition of an infinitesimal amount of a substance inimical to the life of a plant is attended with still more striking results. Thus, the addition of one part in 1,600,000 of nitrate of silver entirely stops the growth. Now, supposing the Aspergillus to be a human parasite—a living contagion—capable of self-multiplication in human blood, and of so altering the constitution of that liquid as to produce death; then, the introduction into the blood of a man weighing sixty kilogrammes of five milligrammes of nitrate of silver would insure, if not the total effacement of this contagium, the neutralization of its power to destroy life. From such facts as this we may foresee that in anticipation of the assault of infectious organisms, the experimenter of the future will try to introduce into the body substances which, small in amount, shall so affect the blood and tissues as to render them unfit for the development of the contagium; and, subsequent to the assault of the parasite, substances which shall effectually stop its multiplication. Dr. Polli, of Milan, has already found some alkaline sulphides that seem to be good against certain fevers and small-pox, and Crudelli has found arsenic helpful against the malaria of the Roman Campagna. To enable us to use these remedies safely and with some assurances of success, experiments must be made of their effects on different groups of individuals, and these individuals must be animals susceptible to the infection and to the counteracting applications.

The Nervous System.—The effects of the extirpation of the cerebrum in rabbits was considered by Prof. Munk in an address before the Physiological Society, a part of which was devoted to the difference in the results obtained in his own experiments and those which Prof. Christiani had reached in his researches. In his own most successful experiments, after removing the cerebrum, he had observed in rabbits, just as in other vertebrates, birds and frogs, a state of depression lasting for a longer or shorter period, to as long as several hours, a state in which they lay apathetically, taking and keeping whatever position might be imposed upon them. From this state they recovered to go through, first, interrupted and apparently spontaneous movements, which yet, on closer inspection, proved to be reflex movements. These, again, were followed by a quickened reflex excitability, which finally was succeeded by convulsive movements, a kind of running stage, which, in from twenty-four to fifty hours after the operation, issued in the death of the animal. Prof. Christiani, on the other hand, after removing the cerebrum, in no case observed a state of depression, but his excerebrated rabbits all acted like normal ones. They moved about, sprang, ran, etc., during the first twelve hours, at least, after the operation. Prof. Munk ascribed these differences to variations in some of the details of the operation, which he pointed out and described. Prof. Christiani rebutted Prof. Munk's interpretation of his experiments, maintained at all points the validity of the results he had arrived at, and referred to a more complete account and vindication of them which was shortly to be published.

Researches have been made by Dr. M. E. Holbrook into the termination of nerves in the liver. He examined with the microscope the livers of various animals, as well as one of a child and one of an adult, employing a combination of chloride of gold with formic acid as his reagent. The nerves appeared marked by a large number of nuclei, by the presence of a delicate sheath around each fiber, and by the dark violet color they had taken on from the reagent and the carmine staining. On the border of the lobules the nerves, which were still in bundles of from three to five or more, ramified and entered the lobule in different places, mostly branching at acute angles along the capillary blood-vessels. Further, the fibrillæ of the nerves course along the layers, or rims of cement substance, which have been found to separate the liver epithelia in the same manner as all other epithelia and endothelia are separated from each other. The results of Dr. Holbrook's researches are in accordance with M. Nesterowsky's assertions, that the blood-vessels of the liver, both the large vessels of the porta and the capillaries within the lobe of the lobule, are accompanied by filaments of nerves; but in none of his large number of specimens has he ever been able to trace a nerve-filament penetrating into an epithelium, as is claimed to occur by E. Pflüger.

Single induction shocks applied to the medulla or spinal cord, when the connection between these and the brain is severed, have been found by H. Kronecker and R. Nicolaides, in experiments on dogs and rabbits, to have no effect, or only a slight effect, even when the shocks were destructively strong, upon blood-pressure. When moderately strong stimuli were used, there was no summation of their effects until the separate shocks succeeded each other at least two or three times in one second. This slow rate of stimulation produces a greater effect in raising blood-pressure when the intensity of the single shock is increased. But the strongest stimuli of slow rate produce far less increase in blood-pressure than stimuli of moderate strength and greater frequency. When the intensity remains constant, increase in frequency of stimulation raises blood-pressure, but the maximum is reached when from twenty to thirty stimuli per second are produced. After the stimulation is brought to a close, the blood-pressure returns to its normal level.

Dr. W. H. Gaskell, experimenting with the nerves of a crocodile to test the supposition that the sympathetic system might provide the heart entirely with augmentor fibers while the vagus contained only inhibitory, found that stimulation of the nerves branching from the main sympathetic chain increased the rate of cardiac rhythm, and augmented the force of the auricular contractions; while stimulus of the vagus slowed the rhythm and diminished the strength of the auricular contractions. Carrying his experiments to the frog, while the effects of stimulation of the ordinary vagus trunk were as already described, he obtained most striking and decisive results from stimulation of the sympathetic on the one hand, and of the intra-cranial vagus on the other hand. Stimulation of the sympathetic before its entrance into the combined ganglion of the sympathetic and vagus produced purely augmentor effects; and stimulation of the vagus within the cranial cavity, before its entrance into the ganglion, produced purely inhibitory effects.

The affections of the nervous system produced by the presence in the body of certain metals, such as lead and mercury, have not been sufficiently studied to determine whether the action of the poison is upon the peripheral or the central apparatus. Dr. Popow has been studying the subject on animals (mainly dogs) poisoned by arsenic, lead, and mercury, respectively, administering the poison in most cases in varying quantities, in order to contrast the effects of acute and chronic poisoning. The general result of his inquiry goes to show that marked changes of an inflammatory character occur in the spinal cord, both in the gray and white matter, under all these conditions. In acute arsenical poisoning, the cord was softened, the gray matter especially being reddened and swollen; there was proliferation of the nuclei of the blood-vessels, and an exudation of a peculiar hyaloid substance. The nerve-cells were swollen, their processes dwindled, and their protoplasm became granular or vacuolated, while in the white columns the axis cylinders showed irregular thickenings. In chronic poisoning it was difficult to discriminate between the two portions of the cord, the divided surface having a yellowish-red color throughout; the walls of the vessels were thickened, and hyaline masses abounded; the nerve-cells were vacuolated or shrunken and pigmented; while free pigment masses, representing traces of hæmorrhage, occurred throughout the sections. Very similar changes were observed in the spinal cord after poisoning by lead and mercury respectively. In each instance the peripheral nerves and the nerve-roots showed no alteration; the conclusion, therefore, is that the paralysis, spasms, etc., characteristic of the toxic effects of these metals, depend upon a central rather than a peripheral disturbance, all the degenerative changes described as occurring in nerves and muscles being strictly secondary effects.

The Circulatory System.—Dr. D. J. Hamilton, of the University of Aberdeen, has communicated the results of investigations into the differences that have been observed in the movements in the blood-circulation of the colored and of the colorless corpuscles. Among the phenomena of the circulation to which he has given special attention are those of the existence of two streams in the arteries and veins, which are better seen in the arteries, the one axial and the more rapid, the other peripheral and slower; that the colored corpuscles float exclusively in the axial stream, while a great many, not all, of the leucocytes float in the peripheral; that the number of leucocytes in the peripheral stream is greater in the veins than in the arteries; that the motion of the colored corpuscles is gliding, while that of the colorless ones is rotating; that in the veins the colorless corpuscles have a tendency to stagnate when they get into the peripheral stream, while the colored have not; and that the capillaries have not any visible axial stream, and in those which admit a single corpuscle only there is a tendency, for the leucocytes more especially, but also for the colored corpuscles, to stagnate. Dr. Hamilton used artificial experimental tubes and preparations in which the conditions of density and gravity, etc., of the circulatory system were reproduced as nearly as possible. The phenomena of peripheral and axial streams are results of friction, from which the water in the middle of the tube being relatively free, it moves more rapidly and directly than at the peripheries, where it is retarded by the sides of the vessel. On introducing solid spheres into the liquid thus flowing through the tubes, Dr. Hamilton found that the position they assumed in the stream and their behavior in it were largely matters of their specific gravity as compared with that of the liquid plasma in which they were floating. The colored corpuscles, having almost exactly the specific gravity of the plasma, assume their position in the center and float with the central current. The colorless corpuscles being specifically lighter than the plasma, their tendency is to rise; hence they come in contact with the vessel-wall more than the others, where they are retarded at the point of contact and consequently roll. These conclusions were tested by other experiments with blood and capillary tubes, in which it was found that by altering the specific gravity of the blood-plasma through a range of something like 1,040 to 1,080, we can make the colored blood-corpuscles float at any level. The lower the specific gravity the more they tend to come in contact with the bottom of the tube, while the higher the specific gravity the more they rise to the higher levels. The nearer we approach the natural specific gravity of the normal plasma, the more they occupy the axis and the quicker they move. The conclusions drawn by analogy from the artificial experiments were thus confirmed and found applicable to the actual circulation. Besides the situation occupied by the bodies suspended in the tube, the experiments determined also that the ease with which any suspended bodies will circulate depends (their size being appropriate to that of the tube) upon the relationship of the specific gravity of the bodies and that of the liquid in which they are suspended. The more they diverge in specific gravity from that of the liquid, the more friction is caused, and the more tendency there is to their becoming retarded and finally arrested in their progress.

Rhythmical contraction and dilatation of the small blood-vessels, independently of the action of the heart, have been observed by Wharton in the veins of the bat's wing; by Schiff in the arteries of the rabbit's ear; by Cohnheim and Gunning in the web and tongue of the frog; and by Ludwig and Brunton in the arterial twigs of the subcutaneous connective tissue. From these and other experiments indicating similar properties, Dr. T. Lauder Brunton infers that rhythmical contractile power seems to be a quality common to all the blood-vessels in the body, and in fact to belong to involuntary muscular fiber generally; and an experiment by Luchsinger, in which distinct pulsation could be observed in the veins of a bat's wing when artificial circulation was kept up, for twenty hours after death, appears to show conclusively that it is the involuntary muscular fiber composing the walls of the vessels, and not the nervous system, that has to do with it. Dr. Brunton has made observations on rhythmical contraction and dilatation of the capillaries, independently of the heart and respiration, in man. They were made in cases of marked aortic regurgitation by observing the variations in width and brightness shown by the red streak which appears when the finger-nail is drawn across the forehead. It is easy in this experiment to observe, in addition to the visible pulse corresponding to the cardiac beat, a second rhythm of contraction and dilatation corresponding to the respiratory movements.

In determining the velocity of the blood-current in making the circuit of the body, Dr. Smith calls attention to the inaccuracy of the old experiments, in which the time elapsing between the injection of an iron salt into the jugular vein, and its appearance in the jugular on the other side of the neck, was made the test. The inaccuracy arises from the fact that different chemical substances in solution make this circuit in very different periods. By his method, defibrinated pigeon's blood is injected into one jugular vein of an animal whose blood is allowed to drop from the other jugular into a series of watch-glasses placed in a circle upon a table, which is revolved by clock-work. Microscopic examination of blood thus collected is made to determine in which watch-glass the oval corpuscles of the pigeon's blood first appear; then, knowing the rate at which the table is turned, it is easy to estimate the time taken by the pigeon's blood in passing from one jugular to the other, in which passage it has probably traversed not only the heart and lungs, but the capillaries of the head as well. The mean of six experiments gives the time of circulation in the dog as 17·5 seconds, during which the heart made 51·5 pulsations. In the rabbit the time of circulation was 11 seconds, during which there were 31 heart-beats.

The velocity of the pulse-wave has been the subject of special experiments by Dr. A. T. Keyt, of Cincinnati. The general result of previous experiments on this point by Continental physiologists has been to show that the speed with which the pulse-wave travels is about 20 feet per second; and it has been further known that the rapidity of the progress of the wave is essentially dependent on the rigidity of the tubes through which it travels. But little had been done to determine the effect of other conditions modifying its speed. Dr. Keyt, with improved apparatus, first set himself to determine the precise influence of tubes of different degrees of stiffness or elasticity on the velocity of the liquid waves sent along their interior. He selected for this purpose, first a glass tube, then India-rubber tubes of varying strength and firmness of wall, then tubes made of chicken-gut, and finally the aorta of a calf. These experiments demonstrated that the velocity of liquid waves in elastic tubes is proportional directly to the stiffness and inversely to the elasticity of the tube traversed; and, as bearing on the rate of pulse propagation in living arteries, they indicate the important modifying influence which the state of the arterial walls, as to stiffness or elasticity, must exert upon the same; for while in a glass tube of $\frac{3}{16}$ of an inch bore and 6 feet in length, the wave-velocity was 216 feet per second; with firm India-rubber tube it was 165 feet; with a softer and more yielding tube of the same bore and length, it was 72 feet; with a still thinner tube, 51 feet; with a similar soft tube, steeped in gasoline and thus rendered more supple, 31 feet; with a tube made of India-rubber cloth, 28 feet; with chicken-gut, 16 feet; and with a calf's aorta, 12·75 feet.

Hæmoglobin forms about 90 per cent. of the dried red corpuscles, and is the substance with which oxygen is associated in the blood, and by means of which it is conveyed to the tissues. It is characterized by the facility with which it is decomposed into the proteid globulin and the reddish-brown powder hæmatin, and by the readiness with which it takes up oxygen to form a weak compound, without undergoing any intrinsic change. The hæmoglobin of human blood has been considered very difficult to obtain in a crystalline form. Dr. Robert Saunders Henry, of Charleston, W. Va., has, however, in experimenting with human blood disgorged by leeches, after it had remained in their stomachs for a time, found hæmoglobin already produced in crystals.

The physical character of the proteids of serum has been made the subject of investigations by Mr. W. D. Halliburton, of University College, London. Two of these proteids have generally been recognized, which the author designates as serum globulin and serum albumen. The investigations were mainly directed to the latter body. In the first experiments, which were made with the serum of a dog, the serum albumen was found to be divisible into three proteids. Subsequent experiments showed that similar bodies were found in the serum of other animals. Three varieties of serum albumen were, therefore, determined, which were called serum albumen α (coagulating at 70°–73° C.), serum albumen β (coagulating at 77°–78°), and serum albumen γ (coagulating at 80°–82° C.). Nearly uniform results were obtained with the serum of the dog, man, monkey, rabbit, pig, and horse. The serum globulin appeared to be in all the cases a single proteid, while the serum albumen was split up into three. But in the serum of the ox, sheep, and horse, while the result was the same in other respects, only two proteids were obtained from the serum albumen, viz., those coagulating at 77° C. and 84° C. It is interesting to observe that these animals belong to the ungulata.

Special Senses. — Experiments to determine the law of the duration of color-impressions upon the retina have recently been made by Prof. Edward L. Nichols. Plateau made researches upon the persistence of vision more than fifty years ago, and found that the duration of the impression made upon the retina by light depends upon the composition of the ray; upon which principle he built up his theory of after-images. His discovery was partially confirmed in the course of Emdmann's experiments, and has been very generally accepted by the writers on physiological optics. Yet our knowledge of the manner in which the duration of the retinal image varies with the wave-length of the impinging ray had not advanced. Prof. Nichols's experiments were made in the usual manner, with rotating disks of different colors. Their result was to confirm, in the main, the results reached by Plateau, and to show that the persistence of the retinal image is a function of the wave-length producing it, being greatest at the ends of the spectrum and least in the yellow; that it decreases as the intensity of the ray producing the image decreases; that the relative duration of the impressions produced by the different spectral colors is not the same for all eyes; that each wave-length of the visible spectrum produces three primary impressions, red, green, and violet, of which green disappears most rapidly and violet is most persistent. Upon the different rates at which these impressions die away depend to a great extent the "subjective" tints of moving objects; and that the duration of the retinal image depends upon the length of time during which the eye has been exposed, being very long after short exposure, and approaching a definite minimum value as the exposure increases. A minor phenomenon observed during the course of the experiments seemed to show that the duration of color-impressions depends, fundamentally, like color itself, upon the character of the nerves affected, rather than upon the wave-length of the ray producing the impressions.

It has been observed that when one looks at a page or a piece of plain white paper illuminated by a lamp placed at one side, if the hand or some other object is held between the eyes so that but half of the page can be seen by each organ, that part of the object toward the light will look green, and the other part red. The same contrasting color-sensation may be produced by the use of ordinary sunlight whenever it falls directly upon the side of the head: a white surface will appear greenish to the illuminated eye and pale red to the other. These color-sensations depend upon the passage of light through the sclerotic and choroid coats of the eye upon which it is incident. The colors are weakened by light entering the pupil directly from the illuminating source, while they are greatly strengthened when it is concentrated upon the sclerotic coat of one eye. The subject has been investigated by Brücke, and the investigation has been resumed and continued by Prof. Henry Sewall, of the University of Michigan. Brücke first proved definitely that the color-sensations in question are due to light transmitted through the sclerotic and choroid coats of the eye as distinguished from that which enters the pupil. The light which has passed through the semi-opaque walls of the eyeball can no longer form definite images, but is nearly equally diffused over the retinal surface; and, having penetrated membranes richly supplied with blood, is no longer white but red or rosy in tint. This red light stimulates and fatigues the "red elements" (or "red substance") of the retina, so that when the image of a white object is thrown upon the background of the eye, it excites into preponderance the resting "green elements" of the retina, and appears green, according to the law of simultaneous contact. To the eye which is not illuminated by oblique light the white surface takes on a tint complementary to the green as the result of subjective contrast. The physiological effects of light entering the eye by other ways than the pupillary openings was the special subject of Prof. Sewall's inquiries. In the eye on which the incident light falls obliquely the green retinal elements are aroused or made more sensitive, while the red elements have their excitability depressed. Hence green colors appear brighter and more saturated when looked at with that eye, while red and orange tints lose in brightness and purity. In the eye not illuminated by side-light, the red elements are enhanced, and the green ones depressed. Stars may be made to appear greenish or red or orange by holding an artificial light by the side of the head when looking at them; and discrepancies in estimating the colors of stars may be partly caused by unnoticed factors of artificial illumination.

That property of vision, by which we are enabled to more accurately distinguish objects when glancing sidewise at them, has been made the subject of recent investigations by M. J. Delbœuf. Experimenting with white light, he has found that the greatest acuteness of vision is situated in the yellow spot of the retina, but that the spot most sensitive to differences of light is a line situated in the vertical meridian beginning at about 30° from the yellow spot, and extending to about 60° from it. It follows from this that the eye is particularly sensitive to changes in luminous intensity that strike the upper part of the retina, or that correspond with objects at the feet, or a little on one side. It is thus that we are able so easily to avoid obstacles. The peripheric parts of the retina convey to us the modifications of the light around us, and, if we care to notice further, we can look at the objects directly and take in their forms and dimensions. While walking, the slightest incidental details of the ground, a stone, a track, a piece of wood, or a leaf, if we look straight ahead, will be more distinctly depicted to us the closer we approach them. In following the tracks of a carriage, the parts nearest to us are more distinct; but if, instead of looking ahead, we look straight down at them, they become less so. The same is the case with lateral vision. When, on a bright night, we fix our eyes on a particular star, the others in its neighborhood come all the more distinctly into view, though they be actually smaller than the one we are regarding.

The relative rapidity with which the sensations of sight, hearing, and touch are transmitted, has been made the subject of experiments by M. Bloch. The precise object of his studies was the time which elapses between the moment when the stimulus acts physically, and that at which it is perceived. The instruments commonly used in the laboratory for similar purposes were employed, namely, a revolving cylinder, tambours, and the tuning-fork. M. Bloch found that his investigation could not be pursued by the ordinary method, which consists in a voluntary response to a stimulus applied to the sensory organ, for that method involves too many processes, with their attendant sources of error. The method he adopted consisted in making use of the apparent simultaneity of sensations of sight and hearing, or of sight and touch, or of touch and hearing, and determining the limits within which this simultaneity appears to exist. Thus, a short, single, well-defined sound was made, by attaching to the drum a pin with wax, which was struck by a lever of steel each time the cylinder was rotated. This stimulus was fixed in point of time, and invariable. At the same moment that the sound was produced, or just before or just after it, the finger of one hand was touched with the tip of a piece of whalebone, also rotating with the cylinder. It was found that when the sound occurred before the contact of the lever with the finger, no error was ever made. The subject invariably heard before he felt. When the two were synchronous, the same result was observed; and even when the tactile stimulus was applied before the auditory, the latter was still first perceived, and this even when the former was $\frac{1}{40}$ of a second before the latter. From a consideration of all his experiments, the author finds that, of the three sensations he has studied, vision is the most rapid; to this succeeds hearing, the transmission of which lasts $\frac{1}{73}$ of a second longer than visual transmission; and, lastly, touch, which in the case of the hand lasts $\frac{1}{21}$ of a second longer than visual transmission.

The Digestive System.—Investigations have been made by F. W. Pavy to ascertain the changes undergone by the four chief carbohydrate elements of food, viz., grape-sugar, cane-sugar, lactine, and starch, during digestion. Beginning with the stomach, the attempt was made to follow the changes in those substances as they proceed toward absorption up to their arrival within the portal system of vessels. The experiments were performed on the digestive organs of freshly-killed rabbits and other animals, portions of the stomach or intestines being left in contact, for a given time, with solutions of known weights of the carbohydrate in question, and the copper-reducing value of the substance, after this digestion, was compared with that which it had been found to have before contact with animal substance. Inasmuch as grape-sugar is characterized by the property of possessing the same reducing power after treating with sulphuric acid as before, while the carbohydrates, which represent steps in an operation of which glucose is the final product, are altered in reducing power by the action of the acid, the author took the precaution to boil one portion of the modified liquid with sulphuric acid in all cases before estimating the reducing power. The copper-reducing value of the digested liquid may thus be compared with that of glucose, while the relation of the modified product to glucose is also ascertained. The most striking result of these experiments is the indication that transformation of glucose into bodies of lower reducing power is possible under the influence of a ferment existing in the stomach and intestines. Boiling of the animal substance with water, previous to the experiment, was found to annul the action of this ferment. The latter body seems to exist rather within the walls of the vessels examined than upon the mucous surface. So far as the experiments have gone, the author regards them as indicating that the ferment is more abundant in the stomach and intestines of the rabbit than in those of the dog, cat, horse, sheep, or pig.

Drs. G. F. Yeo and E. F. Herroun have made investigations of the composition of human bile obtained from a fistula of a patient suffering from jaundice, with comparisons with bile from the gall-bladder of the same person. Difficulty was met in making accurate estimations of the daily secretions of bile, on account of the unavoidable leakage into the dressings of the wound. As nearly as could be determined, the mean quantity was about 13·2 ounces per twenty-four hours; this is considerably below what other authors have estimated for the daily secretions of a well man. No difference in the rapidity of secretion could be detected at any time, nor any increase after the small meals of which the patient partook. The total solid residue was determined on five different occasions within a period of twelve days. The average was 1·3468 per cent. Combining this with other determinations made by Jacobsen, 2·26 per cent., and Ranke, 3·16 per cent., we have a mean of 2·25 per cent. solid constituents in fistula-bile, as against a mean of 9·021 per cent. for gall-bladder bile, as determined by Trifanoski from persons who had died of various diseases, and 13·96 per cent., as determined by Gorup-Besanez, and 14·04 per cent. by Frerichs, from healthy persons who had died suddenly. These determinations indicate that the bladder-bile of healthy persons is only half as rich again in solids as that of persons who have died from disease, while bile from the gall-bladder, even of the latter, contains four times as much of solids as that obtained from a fistula.

Gauthier has found, in normal human saliva, an alkaloid-like, non-nitrogeneous substance, forming a crystallizable compound with chloride of gold and platinum, which, in its physiological action, resembles the ptomaines, or the alkaloids developed in cadavers; injected into animals, it acts like snake-poison. Budwin, making experiments in the same line, obtained negative results.

A widely distributed coloring-matter, which is regarded as beyond doubt a chlorophyl pigment, has been discovered in the livers of invertebrates by Mr. C. A. MacMunn, and has been called by him entero-chlorophyl. It appears to differ from plant-chlorophyl, in that treatment with nitric acid makes the solution slightly greenish, although previously it may have been yellow. Mr. MacMunn's paper relates his researches with the spectroscope, and discovery of this pigment in oysters, crustaceans, and star-fishes. Much evidence has been adduced to show that entero-chlorophyl is synthetically formed in the body of its animal possessor.

The process of rumination has recently been studied by Prof. Luchsinger, in a course of experiments on the goat. As disturbance of the animal is very likely to interrupt the process, the goats experimented on were narcotized with morphia, which numbs painful sensations but interferes but little with reflex action. It was found that pressure with the hand upon the wall of the paunch readily initiated the act of rumination. There was first a movement of the vocal cords tending to close the glottis, then the diaphragm contracted so as to press upon the upper surface of the stomach, and at the same time the abdominal walls contracted energetically, and a morsel of food was thus thrown up into the mouth, any excess of water in it being pressed out and swallowed; then the cud-chewing movements began, and with them a copious flow of saliva into the mouth; and, finally, with a swallowing movement, the masticated morsel was sent back to the fourth stomach for complete digestion. The size of the mass regurgitated was determined by the sphincter muscles at the cardiac opening of the paunch, these relaxing at the beginning of the act, but closing again when a small quantity had been forced out. The whole series of movements was readily brought about by electrical stimulation of the walls of the paunch, or when this organ was mechanically excited by distention with warm water or by pressure with the hand. The flow of saliva and the chewing movements followed in regular order when food was expelled from the paunch, even though the morsel did not reach the mouth, which it was prevented from doing in some cases by a division of the œsophagus. The author concludes that rumination is a complex reflex action, the stimulus to which is the distention of the walls of the paunch by the accumulated food; the amount of pressure upon the wall being also, no doubt, regulated by the motor nerves of the stomach.

Physiological Action of Drugs.—Investigations, including compounds of more than forty of the elements, on the relations between the chemical constitution of substances and their physiological action, have been made by Dr. James Blake, of San Francisco. He has found a close connection existing between the isomorphic properties of various salts and their effects when injected directly into the veins and arteries. He has further been able to announce the law that "among the salts of the metallic elements the intensity of their physiological action is connected with the atomic weight of the element, so that when the elements are arranged in isomorphous groups, the action of the substances in the same group is a function of the atomic weight; the greater being the atomic weight, the smaller is the quantity required to produce the same physiological action." He has arranged ten isomorphous groups of elements, concerning the physiological action of which severally he has reached conclusions substantially as follow: Salts of the soda group, in which are included lithia, soda, potassa, rubidium, silver, cæsium, gold, and thallium, when injected into the veins in sufficiently concentrated solutions to give rise to any marked physiological reactions, kill by arresting the passage of the blood through the lungs, apparently by causing contraction of the pulmonary arteries. When injected into the arteries, the quantity required to kill is much greater than when introduced into the veins. The salts of gold and silver cause contraction of the systemic arteries as well as of the vessels of the lungs. The action of the substances in this group as a whole, except of the potash salts, is to keep up the irritability of the heart. On the nervous system their action is but slight.

Of the magnesia group—including magnesia, manganese, iron in ferrous salts, nickel, cobalt, copper, zinc, and cadmium—the most marked physiological effect in venous injections is suddenly to arrest the action of the heart. Injected into the arteries, they generally arrest respiration before reaching the heart in a sufficiently concentrated state to stop its action. The effect on the nervous system is well marked. Even in small quantities they give rise to a state resembling catalepsy.

The salts of lime, strontia, and baryta, constituting the baryta group, injected into the veins, destroy the irritability of the heart, arresting its pulsation in diastole. When they are injected into the arteries, the heart's pulsations are quickened and the pressure in the arteries is slightly increased. Action on the nervous system is not marked.

Salts of the group including beryllium, alumina, ferric iron, yttria, and cerium (Ce_2O_3), injected into the veins, cause contraction of the pulmonary arteries, resulting in death if the quantities are large, slowing of the action of the heart, with decided vagus pulsations when the quantities are smaller. Injected into the arteries, the first effect is generally inhibition of the heart's action, followed by rapid rise in the pressure in the arteries. The direct action of these salts on the muscles of the heart is to increase their irritability. After the injection respiration is often suspended for one or two minutes, and again goes on regularly, but very slowly, and the action in the general reflex functions of the medulla and spinal cord is well marked. All the substances in this group are very poisonous.

The platinum and palladium salts, when injected into the veins, act directly on the intrinsic nerves of the heart, slowing its action with vagus pulsations and diminution of the arterial pressure. When injected into the arteries, the vagus center is immediately affected, and the action of the heart is slowed. They produce intermissions of respiration, which are repeated till breathing stops for good.

The salts of thoric and cerous oxide (CeO_2) agree with the alumina group in acting principally on the vagus and vaso-motor centers.

The salts of lead, when introduced to the blood, exert an action on the pulmonary arteries and capillaries similar to that of the soda salts; and on the muscles an action analogous to that of the baryta salts, whereby muscular movements continue for many minutes after death. The toxic activity of lead is much less than that of either of the elements with which its physiological reactions connect it.

Phosphorus, arsenic, and antimony are all distinguished by the absence of any well-marked physiological effects when introduced directly into the blood, even in large quantities. They do not apparently affect any part of the nervous system, but kill either by paralyzing the heart, or by their action on the mucous membrane of the lungs. When injected into the arteries they have no action on the vaso-motor centers or on the vagus. With these elements, the toxic intensity is no longer a function of the atomic weight.

Sulphur and selenium, introduced into the arteries, arrest respiration by their action on the nervous system, and increase the irritability of the heart. Selenic acid is more poisonous than sulphuric.

The physiological action of the group consisting of chlorine, bromine, and iodine is well marked. All of the members act on the vaso-motor and respiratory centers, and keep up the irritability of the heart. Injection into the arteries is followed by a great increase in blood-pressure. The action on the respiratory centers is shown by a sudden suspension of respiration in a general clonic spasm.

The influence of veratria on muscular contraction has been found by Lauder Brunton and Cash to vary much with the temperature of the muscle experimented upon. Up to a certain limit, heat increases the effect of the drug; cold diminishes it. Exposure to extremes of heat or cold not sufficient to kill the muscle prevents entirely the manifestation of the usual symptoms of the presence of veratria. The observers remark that the modifications in the action of this drug on muscle occasioned by changes of temperature suggest that temperature may modify the action of other drugs, not only on muscle, but on nerves and nerve-centers. Accordingly, the different action of drugs on different animals, or on the same animal in various physiological and pathological conditions, may be due in part to differences of temperature, either physiological or pathological, within their organisms.

Vegetable Physiology.—Late investigations in vegetable structure have brought out evidence showing that the protoplasmic contents of the cells of plants are not entirely shut off from one another by the cell-walls, but that arrangements exist of such a kind that more or less delicate strands of protoplasm pass through from one cell to another, piercing the cell-walls either at numerous points where are certain thinner spots, or simply here and there. Th. Hartig, in 1837, distinguished certain constituents of the bast of phanerogams which we now know as sieve-tubes. It has since been established by the testimony of numerous observers that strands or cords of protoplasmic substance pass through different pores or passages in the septa or cell-walls. In 1880 Tangl discovered that, in the endosperm of certain seeds, delicate filaments of protoplasm traverse the cell-walls through fine perforations, and so place the protoplasmic contents of the cells in direct continuity one with another. In 1882 Gardiner showed that a similar continuity of the protoplasm exists between the cells of the motile organs of certain sensitive plants. Since 1882, Gardiner has extended his results, and shown the existence of a protoplasmic continuity through the cell-walls of numerous other parts of plants, and his researches have been confirmed by Russow; so that there appears to be no reason now why we should not accept generally the view that the cells of plants are not closed sacs, as was formerly believed, but are provided with passages penetrating their walls, through which fine filaments of protoplasm communicate. Other investigations throwing light upon this matter from totally different directions go to support the view first hinted at by Hofmeister, and lately stated by Sachs, that a much closer relation of cell to cell exists than can be well explained by the theory that a plant is a sort of cell-republic, consisting of aggregated cell-units. It would help the solution of the question raised at this point to ascertain whether the continuity of the protoplasmic strands is maintained from the earliest stages, or is established later. If the former view prevails, then the continuity of the protoplasm through the wall of vegetable cells is simply to be regarded as an expression of the fact that the entire plant or organ is practically one whole, or is one mass of protoplasm, cut up into chambers which communicate with one another, and bounded by a membrane on the exterior. If, on the other hand, the communications between the protoplasm of neighboring cells are only established after a complete septum has been formed, then it may or may not be that that view will hold. So far, the evidence on this point is not sufficient to justify a general statement.

The excitatory phenomena observed in certain plants have been studied by Dr. J. Burdon-Sanderson, who finds that they are dependent on a vital change in the protoplasm of the cells, and that this may be observed when the plant is asleep as well as when it is awake. The cells of the plant, which unexcited are distended or charged with liquid, undergo on excitation a sudden diminution of tension or of expansion by the discharge of the water contained in them, which finds its way, first into the intercellular air-spaces, and then out of the motor organ altogether. The discharge is due to a sudden loss of its water-absorbing power by the protoplasm of the cell, whereby the external cell-sac, whose elastic tendency to contract is kept in check only by the constantly distending action of the protoplasm, presses upon it with force enough to squeeze out the cell-contents. This action being participated in by all the individual cells, the leaf-stalk, or whatever organ it may be that droops, necessarily becomes limp and falls. The motion of the leaf is, however, the result of the action of many hundred independent cells, all of which may act together, or may not, but in either case the action is hesitant; for during a period after excitation, which amounts at ordinary summer temperature to about a second, the leaf remains absolutely motionless, and during this interval an electrical disturbance takes place in the plant. Differences, obvious and well marked, exist between the mechanism of plant-motion and that of animal motion; but they are not essential, for they depend, not on difference of quality between the fundamental chemical processes of plant and animal protoplasm, but merely on differences of rate or intensity.

Localization of Function.—In a paper on the effects of lesions of different regions of the cerebral hemispheres, read before the Royal Society, Drs. Ferrier and Gerald Yeo give a detailed account of experiments conducted upon monkeys, consisting in the removal under anæsthetics of certain limited areas of the cortex. The regions operated upon were the occipito-angular, temporal, Rolandic, frontal, and hippocampal. It was found that lesions of the occipital lobes and angular gyri caused disturbances of vision, of importance varying with the extent of the lesion. Unilateral excision of the occipital lobe and angular gyrus induced temporary amblyopia of the opposite eye and homonymous hemianopia of both eyes toward that opposite side. Experiments on the superior temporo-sphenoidal convolution were followed by complete and permanent deafness, other lesions of the temporal lobe producing no change in this sense. The Rolandic region—or the cortical layers around the fissure of Rolando—was again shown to be the center of motor impulses, lesions in those areas producing motor paralysis without loss of sensation, varying in degree and extent according to the seat and extent of the lesion; secondary degeneration of the pyramidal tracts of the spinal cord followed these lesions. No effects followed lesions of the prefrontal regions. Only temporary paralysis of the lateral movements of the head and eyes was produced by lesions of the post-frontal region, temporary so long as portions of the frontal lobes remained. Lesions of the frontal lobes were followed by descending degeneration, traced through the center of the foot of the crus cerebri, and of corresponding fibers of the internal capsule, but not passing into the anterior pyramids. The result of the removal of the hippocampus major and its convolution and the neighboring inferior temporo-sphenoidal region, without interference with the crus or the basal ganglia or internal capsule, was to cause complete anæsthesia of the opposite side of the body, the degree of such anæsthesia depending upon the amount of destruction of the hippocampal region.

Physiology of Aquatic Life.—Experiments made and reported upon by Prof. Sydney Ringer to determine the influence of the saline constituents of fresh water on fishes show that while fish will live for weeks unfed in "tap-water," they die, when placed in distilled water, in a few hours, minnows, for instance, in an average of four and a half hours. The addition, however, either of a sodium or a calcium salt in minute proportions greatly prolongs their life. Sodium chloride, sodium bicarbonate, and potassium chloride, added singly to distilled water, sustain life for the same time, namely, from one to two days, sodium bicarbonate prolonging life rather longer than either of the other two salts. Calcium chloride added to distilled water sustains life much longer than either corresponding quantities of sodium or potassium salts. The addition of sodium carbonate greatly enhances the life-prolonging power of calcium chloride, the combination, indeed, appearing as capable of sustaining life as "tap-water." Dr. Ringer finds that while a reduction of the relative quantity of salts below a certain point renders water incapable of sustaining life, fish like minnows and sticklebacks can exist in fluids containing a considerable excess of salts over the amount common in river-waters. He finds, too, that by gradually reducing the quantity of sodium salts, he can habituate minnows and sticklebacks to live in a fluid containing only a calcium salt or calcium chloride. Sticklebacks, which are anadromous, become much more readily habituated to a fluid of a different composition from that to which they are accustomed, and far more readily, than minnows. In some of his experiments the author noticed that one, two, or more of the minnows greatly outlived the rest. This was not because the fish in question became habituated to the distilled water, for they died speedily when placed in a fresh supply of it; and Dr. Ringer presumes, as a more tenable supposition, confirmed by circumstantial evidence, that the other fish gave up something to the water, probably inorganic salts, which enabled it to sustain life. The general conclusion drawn from the experiments is, that, to sustain the life of fish, the water in which they live must contain a minute quantity of various salts, for instance one in from 5,000 to 10,000 parts of calcium and sodium salts; that in water containing a smaller quantity, fish languish and die, while they die still sooner in distilled water. On the other hand, they can live in a great excess of lime over the minimum essential to sustain life.

The experiments of Mr. H. A. Coutance on bivalve and univalve mollusks are partly parallel with those of Prof. Ringer, and supplement them. By reason of their different organization, the mollusks experimented upon gave very different results. The bivalves, which could shut themselves up between their valves, as a general rule showed greater resistance than the univalves. Of these, the periwinkles, whose operculum can close entirely, retired into the remotest coils of their spirals, and were thus better protected than the buccins, whose opening does not shut tightly, and into which the water can easily enter. Salts of potash seem much less favorable than those of magnesia, and especially than those of soda. The favorable action of the salts of soda was shown by the endurance of the mollusks in Vichy water, some palourdes living forty days in that medium. Life was sustained longest in the sulphate of magnesia, and more strikingly in the sulphate of soda. It was also only in the solutions of these two salts that green algæ began to make their appearance at the end of sixty days. This fact was regarded as corroborating the correspondence already observed between the conditions favorable to marine life and those which promote the development of vegetable life.

The question of the conditions under which gases occur in a state of absorption in the ocean-waters has been considered by Prof. Moseley, of the Challenger Expedition, as one the understanding of which is important to the physiologist. Prof. Ditmar's researches show that the presence of free carbonic acid in ocean-waters is an exception. Oxygen is present in all sea-water, being derived from the surface, but the amount diminishes, on account of the oxidizing that is always going on, with increase of depth. M. Regnaud's experiments on the effects on organisms of high pressures, corresponding with those of certain sea-depths, show that a fish without a swimming-bladder, or one with the bladder emptied of air, may be subjected to a pressure of 100 atmospheres, or 650 fathoms, without injurious effect; at 200 atmospheres, or 1,300 fathoms, it becomes torpid, but soon revives when the pressure is removed; while at 300 atmospheres, or about 2,000 fathoms, the fish dies. The results of these experiments would probably have been greatly modified if plenty of time had been given for the fish to accommodate itself to the change of pressures and the conditions in which it moves itself slowly from one depth to another to be imitated. M. Paul Bert's experiments upon the effect on aquatic organisms of water subjected to the pressure of compressed air—a very different condition—show fatal results at fifteen and even at seven atmospheres. A large proportion of the food-supply of the deep-sea animals appears to be derived from life on the ocean-surface, or that which is brought to the surface by rivers from the land sinking to the depths.

Bibliography.—Among the new and valuable works published during the year in the departments of anatomy and physiology the London "Lancet" selects as worthy of special mention Yeo's "Manual of Physiology," Preyer's "Physiologie der Embryo" (Physiology of the Embryo); Vogt's "Anatomie Comparée" (Comparative Anatomy); Waldeyer's "Anatomie," Charles's "Physiological and Practical Chemistry," Hart's "Atlas of Female Pelvic Anatomy," Rudinger's "Anatomie des Prostate," Purser's "Manual of Histology," Fol's "Lehrbuch der vergleichenden mikroskopischen Anatomie" (Text-Book of Comparative Microscopic Anatomy); and Parker's "Hunterian Lectures on Mammalian Descent." Foster and Morrant Baker have published new editions of their works on physiology, and Mr. Power an elementary text-book on the subject. Wernich and Hirsch have begun the issue of a Biographical Lexicon of conspicuous names in Medicine. Dr. Stirling has published a translation of Landois's "Physiology." Among the most important articles published in Pflüger's "Archiv" are those of Loeb on the "Disturbance of Vision after Injury of the Cerebral Cortex"; the researches of Cohnstein and Zuntz on the "Blood Circulation and Respiration of the Mammalian Fœtus"; the essays of Worm Müller on "The Excretion of Sugar and the Estimation of the Sugar excreted by the Kidneys in Man," and of Karl Bohland on the "Quantitative Determination of Nitrogen in the Urine"; and Goltz's essay on "The Functions of the Brain." In Foster's "Journal of Physiology," Burdon-Sanderson and Page have described the "Electrical Phenomena of the Excitatory Process in the Heart of the Tortoise"; Klein has published an essay on the "Swine-Plague"; and Langley and Sherrington a paper on "Secondary Degeneration of Nerve-Tracts following Removal of the Cortex of the Cerebrum in the Dog." In Prof. Humphry's "Journal of Anatomy," Dr. Barrett has discussed the cause of the first sound of the heart; Ainslie Hollis has described the "Histology of the Central Gray Substance of the Spinal Cord, Medulla Oblongata, and Pons Variolii"; and Dr. Younan the "Histology of the Vitreous Humor."

Besides these, we notice in the catalogue published in the "Journal of Physiology," including works which appeared previous to September, 1884, Brucke's "Vorlesungen," or Lectures; Landois's "Lehrbuch," 4th ed.; Martin's "The Human Body" (American); Wurtz's "Traité de Chimie Biologique"; Béclard's "Traité Elémentaire," 7th ed.; Frédérique and Nuel's "Eléments de Physiologie humaine"; Power's "Elements of Human Physiology"; James's "Aids to Practical Physiology"; Hoppe-Seyler's "Die Entwickelung der physiologischen Chemie und ihre Bedeutung für die Medicin" (The Development of Physiological Chemistry and its Significance in Medicine); and a total of fifty works and papers classed under the title "Text-Books, Methods," etc. Among the thirty-two works and papers on the general chemistry of tissues and of animal and vegetable substances, are Tschirche's papers on "Chlorophyll and its Derivatives"; Brieger's "Ueber giftige Producte der Faulniss-Bacterien" (on the Poisonous Products of Putrefaction-Bacteria) and "Ueber Spaltungsproducte der Bacterien" (on Decomposition-Products of Bacteria); Kühne and Chittenden's (American) Researches on Albumose; and Struve's "Studien ueber Milch". (Studies of Milk). General Physiology is represented by Frommann's "Untersuchungen," or researches on the structure, life-manifestations, and reactions of animal and vegetable cells; Detmer's "Pflanzenphysiologische Untersuchungen," or vegetable physiological researches on ferment-formation and ferment-processes; Brass's "Beiträge" (or contributions) to cell-physiology, and sixteen other monographs; the structure and general features of the blood by nineteen; the circulation by twenty-two (six of them American); the lymphatic system by three; the physiology of the alimentary canal, digestion, etc., by fourteen (one American); of the liver, bile, glycogen, etc., by three; of the kidneys and urine by twenty-six, memoirs. In the general metabolism of the body fifteen papers are recorded, the most important of which is Pavy's, "On the Physiology of the Carbohydrates in the Animal System"; in animal heat, five; in the structure of contractile and nervous tissues, three; in the general properties of contractile tissues, muscle, and nerve, fifteen; on the central nervous system, twenty-four (three American); on the eye and vision, sixteen; on the ear, hearing, skin and touch, taste and smell, twenty-one; on speech, four; on locomotion, three; on reproduction, etc., ten (two American); on the action of drugs, etc., fourteen; and on ferments, germs, etc., ten monographs.

POISONS. Ptomaines.—Attention has lately been strongly directed to this important subject, which threatens to revolutionize our previous ideas with regard to the infallibility of well-known tests for the detection of poisons in the dead body. It has been discovered that there are developed within the cadaver certain peculiar alkaloids, which have received from French toxicologists the name "ptomaines." No corresponding English term has yet been suggested. These "cadaveric alkaloids," as they are sometimes called, can also be obtained experimentally from the decomposition of albumen, muscle, brain, etc. They have even been found in the physiological excretions, such as saliva and urine.

It is of vital importance to remember that these substances may easily be mistaken for poisons that have been administered during life with felonious intent. If a toxic substance be found within the body within from twenty-four to forty-eight hours after death, it is strong evidence that it is a real poison and not a ptomaine. After the lapse of two days, however, there may be considerable doubt, and there is no sure test for distinguishing between the true and the false. Chemical must be supported by physiological tests.

It is supposed that these mysterious pseudo-poisons may be the cause of many obscure pathological conditions, especially such as follow the ingestion of bad meat, decayed fish, etc. The importance of this discovery is great, since it throws doubt upon many chemical analyses hitherto regarded as exact in their results, and, while adding to the care and responsibility of the analyst, it opens a loop-hole of escape for the guilty, such as an unscrupulous lawyer would not be slow to take advantage of.

Tuberculosis. — Since the promulgation of Koch's parasitic theory of tubercular consumption, it has met with strong opposition from several quarters, though it is well to remind the reader that the doctrine has been accepted by the majority of the medical profession. The arguments against the theory are briefly these: It has been proved by numerous clinical observations and experiments that certain men and animals possess a decided "scrofulous habit," and that only such individuals have pulmonary tuberculosis. Moreover, both men and animals that were previously healthy, may acquire a tendency to consumption through the agency of bad nutrition and hygienic surroundings. Whenever such individuals have an inflammation of the lungs, it is of a tuberculous nature, or, in other words, without inflammation there can be no tuberculosis. The presence of the microscopic organisms known as "bacilli" is not necessary for the causation of tuberculosis. They only occur secondarily, and after the lung-tissue has begun to break down rapidly. The diseased lungs merely form a favorable soil for these organisms. Lastly, it is asserted that Koch has not proved either the parasitic nature of phthisis, or that there is any special bacillus tuberculosus.

It will be seen that the discussion turns upon the point whether the bacilli are the cause or the result of phthisis. As far as the evidence at present before us goes, the former theory may be regarded as still unshaken.

PORTO RICO, an island of the West Indies, a possession of Spain. (For details relating to area and population, see "Annual Cyclopædia" for 1883.)

Government.—The Captain-General (since Nov. 23, 1884) is Don Luis Davan; the American Consul at St. John's is E. Conroy.

Finance.—The revenue during the fiscal year 1883–'84 was $3,863,376, and the expenditure $3,926,065, leaving a deficit of $62,689. The budget of the colony for the fiscal year 1884–'85 estimated the outlay as follows:

General outlays	$1,060,578
Department of Justice	262,480
Department of War and Navy	1,247,464
Department of Finance	241,899
Department of Administration	584,988
Department of Public Works	811,976
Total	$3,658,780

The custom-house produced in 1882–'83 from import duties $2,215,651, and from export duties $278,697.

Commercial Treaties.—Details relating to the preliminary treaty, and later the general reciprocity treaty, negotiated by Messrs. Foster and Elduayen, will be found under CUBA. In Cuba the main interest centers on sugar, while in Porto Rico a vast area in the uplands is devoted to coffee-planting, and all coffee enters the United States duty free. The committee report addressed to Congress by the New York

Chamber of Commerce contained the following points of objection: That it is not a reciprocity treaty, but a treaty for the purpose of coming to the assistance of the bankrupt Cuban landowners, and of making the island a source of revenue to Spain at the expense of the United States; that we relinquish $30,000,000 of annual revenue against $3,000,000 to $4,000,000 sacrificed by Cuba, merely benefiting a small population of 2,000,000 souls having a large productive but small consumptive capacity, while we are a people with a population of 55,000,000 of great purchasing capacity; that the treaty would not be very important to American manufacturers, as the countries thrown open to their products are too small and buy too little; that it would be fairer to reduce the duties on Spanish West India sugar 10 per cent. if imported under the American flag, instead of abolishing the duty altogether and placing Spanish vessels on a par with ours; that the treaty would ruin American sugar-planters outright, in whose industry $100,000,000 are invested; that it would not cheapen sugar in this country, since the Spanish West Indies would not sell their sugar cheaper than other producing countries; and that thousands of American workmen would be thrown out of employ at a time when they are least able to compete with coolie labor.

Commerce.—The amount of domestic merchandise exported to the Spanish West Indies from the United States during the fiscal year 1883, as compared with the export thither from England in 1883, and from France and Spain in 1882, was as follows:

ARTICLES.	From the United States.	From the United Kingdom.*	From France.	From Spain.
Breadstuffs:	Values.	Values.	Values.	Values.
Wheat	$62,471	......	......	$140,889
Wheat-flour	1,745,360	......	......	1,535,370
All other	634,088	......	......	472,427
Total breadstuffs	$2,441,819	......	......	$2,148,686
Chemicals and medicines	$236,562	$57.771	$28,711	$60,671
Coal	454,488	866,185	......	......
Cotton, manufactures of	116,213	4,845.890	185,514	983,918
Earthenware	4,271	160,161	25,061	154,491
Fancy articles	48,768	......	109,886	157,806
Fish	267,816	......	......	24,914
Flax, hemp, and jute, manufactures of	255,788	1,895,599	123,569	424,825
Fruits	59,829	......	......	988,770
Glass and glassware	117,658	98,642	......	......
Hats, caps, and bonnets	2,710	......	17,644	82,885
Iron and steel, manufactures of	2,450,184	2,249,816	78,604	206,002
Jewelry, and manufactures of gold and silver	3,542	......	163,643	7,944
Leather, and manufactures of	52,775	......	854,624	2,278,851
Malt liquors	98,945	251,044	......	......
Paper and stationery	287,060	......	86,249	899,277
Provisions	8,967,112	......	100,566	780,794
Rice	55	......	......	66,881
Silk, manufactures of	......	......	24,923	......
Soaps	2,887	......	......	639,835
Spirits	2,381	......	4,968	198,188
Umbrellas and parasols	......	......	......	29,185
Vegetables	321,226	......	......	207,561
Wearing apparel	4,377	168,687	70,252	......
Wine	......	......	129,091	4,848,668
Wood, and manufactures of	3,647,021	......	......	......
Wool, and manufactures of	758	858,472	......	......
All other articles	11,895,862	990,426	440.701	1,281,491
Total	$16,684,417	$10,981,643	$2,449,576	$15,258,486

* 1883.

The item "manufactures of iron and steel" exported from the United States is so very large, comparatively, because it includes machinery used in the manufacture of sugar, a branch of industry in which the United States have acquired an acknowledged superiority in supplying those islands. The peninsular and foreign trade movement in Porto Rico for two years was:

YEARS.	Imports.	Exports.
1882	$14.815.504	$11,582,884
1883	18,755,848	11.807,729

The official returns of the export movement in leading staples were as follow:

ARTICLES.	1883-'84.	1882-'83.
	Kilogrammes.	Kilogrammes.
Sugar	95,049,946	76,129,898
Coffee	11,546,067	16,860,144
Tobacco	2,264,976	1,800,693

The principal imports into the United States from Porto Rico in 1884 were: 138,382,724 lbs. of sugar, valued at $5,162,287, and 6,325,088 gallons of molasses, at $1.634,782.

In 1883 there entered Porto Rican ports 1,907 vessels, of a joint tonnage of 1,227,853; cleared, 1,707, of 1,113,383 tons.

PORTUGAL, a monarchy in southern Europe. The members of the House of Peers are nominated for life by the King. The deputies are elected by the citizens possessing a net income of at least $110. The number of peers is 150, that of deputies is 173 by the new electoral law of 1884. The Cortes assembles at stated periods without the intervention of the sovereign, who has no veto on a law passed again after he has sent it back unsigned. New elections are held every four years. All laws relating to the army and to general taxation must originate in the Chamber of Deputies.

The reigning King is Luis I, born Oct. 31, 1838, the son of Queen Maria II and of Prince Ferdinand of Saxe-Coburg. He succeeded his brother, Pedro V, Nov. 11, 1861.

The Cabinet was constituted Oct. 24, 1883, as follows: President of the Council and Minister of War, A. M. de Fontes Periera de Mello; Minister of the Interior, A. C. Barjona de Freitas; Minister of Justice, Lopo Vaz de Sampaio e Mello; Minister of Finance, Dr. E. R. Hintz Ribeiro; Minister of Marine and the Colonies, M. Pinheiro Chagas; Minister of Foreign Affairs, J. V. Barbosa du Bocage; Minister of Public Works, Commerce, and Industry, A. A. de Aguiar. (For area, population, etc., see "Annual Cyclopædia" for 1883.)

The values imported and exported of the various classes of merchandise in 1882 were as follow, in milreis:

COMMODITIES.	Imports.	Exports.
Cereals	7,624,000	421,000
Fruits and vegetables	748,000	1,805,000
Colonial produce	3,385,000	137,000
Wines, etc.	198,000	9,979,000
Animals and animal products	4,486,000	3,976,000
Mineral products	2,222,000	1,570,000
Metals	4,753,000	2,778,000
Hides, leather, etc.	2,229,000	266,000
Timber, etc.	1,057,000	2,709,000
Glass and pottery	305,000	19,000
Textile materials and manufactures	5,493,000	176,000
Miscellaneous manufactures	3,479,000	518,000
Drugs, etc.	843,000	402,000
Total	36,327,000	24,746,000

The movement of shipping in 1882 was as follows: Sail tonnage entered, 774,000 cubic metres, of which 496,000 represent the vessels engaged in long voyages, and 278,000 the coast-traders; total sail tonnage cleared, 829,000 cubic metres; the total steam tonnage entered, 2,915,000 cubic metres; the long-voyage tonnage, 2,517,000 cubic metres; the steam tonnage cleared, 3,005,000 cubic metres.

The merchant navy in 1882 numbered 38 steamers of a total capacity of 11,785 cubic metres, and 453 sailing-vessels of a total capacity of 78,354 cubic metres.

Railroads and Telegraphs.—The total length of lines in operation Jan. 1, 1884, was 1,520 kilometres; under construction, 483 kilometres. The telegraph system, which belongs to the Government, had a total length of lines in the beginning of 1883 of 4,670 kilometres; length of wires, 11,835 kilometres. The number of paid messages in 1882 was 612,758; the receipts in 1881, 186,028 milreis; in 1882, 271,752 milreis.

The Post-Office.—The number of ordinary letters forwarded in 1882 was 12,606,215 internal and 1,581,322 international received and 1,560,693 sent; the number of newspapers, 9,229,937 internal and 874,091 international received and 477,450 sent. The receipts of the post-office in 1879–'80 amounted to 495,060 milreis.

The Army.—The army is raised partly by conscription and partly by enlistment. The effective on Jan. 1, 1884, was 2,195 officers and 24,450 men, besides 455 officers and 3,522 men stationed in the colonies. A decree providing for a reorganization of the army was issued May 19, 1884. There are to be 24 regiments of infantry, 12 of *chasseurs*, 10 of cavalry, 3 of mounted artillery, a brigade of mountain artillery, a regiment and 4 companies of garrison artillery, and a regiment of engineers. The duration of service will be twelve years—three with the colors, five in the first, and four in the second reserve. The war effective under the new organization is to be raised to 120,000 men.

The Navy.—The navy in 1883 consisted of 30 steamers with 108 guns, and 14 sailing-vessels. The only efficient vessels were a ram and two corvettes. A corvette and two gunboats are building. The number of sailors in active service in 1884 was 3,235.

Finances.—The closed accounts of 1878–'79 make the total ordinary receipts 26,792,224 milreis, the extraordinary receipts 2,152,260 milreis; total receipts of the treasury, 28,944,484 milreis; expenditures on the public debt, 10,723,928 milreis; on public works, 7,167,885; other expenditures, 16,226,887; total expenditures, 34,118,700 milreis.

The budget for 1884–'85 makes the total receipts 31,486,067 milreis, of which 6,280,890 come from the land-tax, industrial licenses, and other direct taxes; 16,142,110 from import duties, imposts on tobacco, cereals, wine, the Lisbon octroi, and other indirect taxes; 3,248,000 from stamps and registry dues, 1,057,000 from additional taxes imposed by the law of April 27, 1882; 3,606,520 from public works, etc.; and 1,101,547 represent technical entries balanced on the other side of the account. The expenditures are set down as 38,447,706 milreis, of which 6,138,000 milreis are extraordinary outlay for public works, making the total ordinary expenditures 32,309,706 milreis. The expenditure on account of the public debt is 13,093,704 milreis.

The colonial budgets for 1884–'85 foot up 2,759,452 milreis of receipts and 3,162,809 milreis of expenditures.

The public debt on June 30, 1883, amounted to 430,852,310 milreis of new stock and 1,907,418 of old bonds still outstanding. The new debt consisted of 235,661,808 milreis of internal debt funded at 3 per cent. and the foreign bonds amounting to £43,372,530, or 195,190,502 milreis. The interest on the public debt in 1884–'85 amounts to 13,497,530 milreis. The interest in arrears amounted to the sum of 5,703,528 milreis, 2,627,833 milreis remaining unpaid on the refunded domestic debt and £686,995 on the sterling debt.

PRESBYTERIANS. I. Presbyterian Church in the United States of America.—The following is a general summary of the statistics of this Church, as compiled by the stated clerk, and published in the "Journal of the Proceedings of the General Assembly" for 1884: Number of synods, 24; of presbyteries, 190; of ministers, 5,336; of candidates, 733; of licentiates, 275; of elders, 19,968; of deacons, 6,287; of churches, 5,973; of communicants, 615,942; of additions of members on examination, 34,938; of baptisms, 11,942 of adults, and 19,483 of infants; of members of Sunday-schools, 687,269. Total amount of contributions, $10,166,401; of this amount, $620,023 were for home missions, $550,220 for foreign missions, $118,956 for education, $83,542 for the freedmen, and $193,047 for church-erection.

The following summaries embrace the principal items in the reports made by the several boards to the General Assembly concerning the condition of the various interests under their charge: The Board of Relief for disabled ministers and the widows and orphans of deceased ministers returned receipts from all sources of $112,875, with 498 persons enjoying the benefit of the relief funds. A "Presbyterian Minister's House," with eleven acres of ground, the gift of Dr. A. M. Bruen, of New York, had been opened at Perth Amboy, N. J., where eighteen persons were entertained while recovering health and strength.

The receipts of the Board of Education for the year had been $67,100. Five hundred and seventy-seven candidates had been under the care of the board, studying for the ministry in theological seminaries, colleges, and preparatory schools. Of these students, 36 were Germans, 5 Bulgarians, 45 negroes, 2 Spaniards, 2 Chinese, 1 Hindoo, and 1 Indian. The allowance to students had been raised to $130 each.

The receipts of the Board of Publication, including a balance of $28,681 from the previous year, had been $308,393. The publications of the board numbered more than 2,500, of which about 1,500 were volumes, and the rest tracts and pamphlets. The issues for the year comprised 302,000 copies of new publications, and 1,487,500 copies of reprints of former publications. The receipts of the board in its missionary department had been $59,152. Eighty-four colporteurs had been employed in this department, in the sale and gratuitous distribution of books, tracts, and periodicals. A "Bible Correspondence School" had been established in connection with the Sunday-school department, for thorough and systematic study of the Bible and of methods of Sunday-school teaching, and numbered 5,300 members.

The Board of Aid for Colleges, at the close of the first year of its operations, reported that its receipts from contributions of the churches had been $14,912; besides which $14,074 had been contributed by the donors directly to institutions. The means received by the board had been distributed among nine institutions; of these, three were new institutions, which the board had helped to found, viz.: the College of Emporia, Kan.; the Presbyterian University of Southern Dakota, Pierre, Dak.; and the College of Montana, Deer Lodge, Mon.

The income of the Board of Home Missions had been: for the Home Missionary Department, $487,480; for the Sustentation Department, $20,146; for the School Department, $112,801; total, $620,488. The general summary of the work of the board includes the following items: Number of missionaries, 1,458; of missionary teachers (53 among the Indians, 26 among Mexicans, and 65 among the Mormons), 144; number of members in mission churches, 71,333, of whom 6,216 had been received during the year on profession of faith; number of persons in congregations, 129,547; number of baptisms, 2,065 of adults and 3,958 of infants; number of Sunday-schools, 1,825, with 121,742 members; number of church-buildings, 1,307, which were valued at $3,640,466. One hundred and thirty-five churches had been organized and 44 had become self-sustaining during the year. A mission at Fort Wrangel, Alaska, engages one missionary teacher and returns a day-school of sixty pupils.

The Board of Church Erection had received $53,131, and granted $101,200 to 236 churches.

The 13 theological seminaries returned 55 professors, 7 other teachers, and 516 students, with 129 graduates. The entire value of their real estate was given at $2,112,431, and the amount of their endowment funds at $3,198,014. The seminaries are those of Princeton, Auburn, Alleghany or Western, Lane, Union, Danville, Northwest, San Francisco, the German seminaries at Newark, N. J., and Dubuque, Ia., and the theological departments of Blackburn, Lincoln, and Biddle Universities.

The income of the Board of Missions for Freedmen had been $121,521. The board had also received in the past few years $14,120 for permanent investment, of which $6,120 had been contributed by the United Presbyterian Church of Scotland for the African scholarship fund of Biddle University. The condition of the work among the freedmen was exhibited in the report as follows:

Number of preachers, catechists, and teachers employed, 204; whole number of churches under the care of the board, 179, of which 11 had been organized during the year; whole number of communicants, 12,958, of whom 1,199 had been added on examination; number baptized, of adults, 530; of infants, 892; number of Sunday-schools, 169, with 12,058 pupils; number of schools 67, with 133 teachers and 7,388 pupils. The five higher schools, Biddle University, Charlotte, N. C.; Scotia Seminary (for girls), Concord, N. C.; Wallingford Academy, Charleston, S. C.; Brainerd Institute, Chester, S. C.; and Fairfield Institute, Winnsboro, S. C., returned 1,770 students, of whom 91 were studying for the ministry, and 158 had taught schools, including 9,120 pupils.

The receipts of the Board of Foreign Missions had been $693,122, and the board closed the year with a debt of $10,723. The contributions of the various Women's Auxiliary Boards and Societies during the year had been $203,754; and since these societies had come into existence, fourteen years before, they had contributed in all, $1,707,484. The missions of the board were among ten tribes of American Indians, in Mexico, Guatemala, South America, Africa, India, Siam, Japan, China, Persia, and Syria, and among the Chinese in the United States. They returned altogether, 168 American ministers; 108 ordained native ministers; 143 native licentiates; 23 American men and 281 American women as lay missionaries; 786 native lay missionaries; 19,218 communicants; and 25,914 pupils.

General Assembly.—The General Assembly of the Presbyterian Church in the United States of America met in Saratoga Springs, N. Y., May 15. The Rev. George P. Hays, D. D., was chosen moderator. Upon report of the committee having the subject in charge to that effect, the Revised Book of Discipline and the Revision of Chapter X of the Form of Government, having been approved by the requisite number of presbyteries, were formally declared to have been adopted, and to be now a part of the constitution of the Church. A resolution was adopted recording the determination of the General Assembly to continue correspondence with the General Assembly of the Presbyterian Church in the United States (Southern) by delegates. The committee appointed by the previous General Assembly to confer with a similar committee from the Presbyterian Church in the United States in regard to plans of co-operation, reported that the committees had agreed upon provisions for the use and occupancy of Danville Theological Seminary in perpetual joint tenancy and the removal of the institution to Louisville, Ky. They had also agreed upon a resolution, to be recommended to the two General Assemblies, for concurrent adoption; with regard to co-operation in home missions; that "this Assembly, while asserting its right to labor in every part of our common country, would most earnestly enjoin those charged with the direction of home-mission work, that they see that nothing be done through strife or vainglory; that in prosecuting this work the interests of the other Assembly already in occupancy, either with an organized church or missionary labor, shall be most carefully respected; and that the matter of consolidating feeble churches and cases of disagreement threatening the disturbance of fraternal relations shall be referred to a joint committee of the presbyteries having jurisdiction"; and with regard to comity in the matter of discipline, "that this General Assembly, as a matter of comity between our own Church and the Southern (or Northern) Presbyterian Church, growing out of the fraternal relations so recently established, enjoins upon our church sessions, presbyteries, and synods, that they have due regard for the discipline of all the sessions, presbyteries, and synods of that Church." The Assembly's committee also reported that it had, after considering the many difficulties in the way of co-operation, deemed it proper to say to the joint committee, that "we feel constrained to report to our Assembly that in our judgment the only effectual method of removing these difficulties is through organic union between these two branches of the Presbyterian Church. We would, therefore, respectfully ask our brethren representing the Southern Church in this joint committee to make a similar representation to their General Assembly. We do this with the hope that both Assemblies may take such action as will lead to organic union." To this the Committee of the Southern Church replied that, by the action of their Assembly of 1883, they felt constrained to say that they were estopped from making any recommendation, and from considering the matter of organic union. The committee on the subject of reduced representation in the General Assembly reported that the returns of the votes of the presbyteries upon the overtures that had been submitted to them failed to give any evidence of any general desire on the part of the churches to reduce the size of the Assembly, but gave abundant evidence that the Church did not demand reduction, all plans to that end submitted year after year having been rejected by the presbyteries. A proposal to erect in the city of Washington a monument to the memory of the reformer, John Calvin, was approved, and members of the Church were encouraged to contribute in aid of the enterprise. In the matter of Sabbath observance, the use of the Sabbath-day, or of any part of it, for purposes inconsistent with its sanctity, was declared sinful; churches and ministers were urged to disseminate this view of the question; and the people of the Church were counseled not to be, as owners, managers, or employés of railroad and steamship companies, as shippers or passengers on the Sabbath, or as publishers, patrons, or writers for Sunday newspapers, participants in those forms of Sabbath-breaking. The habit of taking mail matter from the post-office on the Sabbath was disapproved of. On the subject of temperance, "the uniform testimony of past Assemblies, from the year 1812 down to the present time," was reiterated, the principles of total abstinence and prohibition and their application were approved, and systematic action in behalf of temperance was advised. The Assembly decided, in reply to an overture in which the questions were asked, that a minister who has been deposed from his office, or has demitted it, is reduced to the condition of a lay member, and must therefore be reordained in case he is restored to office.

II. Presbyterian Church in the United States. (Southern).—The following is a summary of the statistics of this Church, as they were reported to the General Assembly in May, 1884:

Synods	18	Total communicants	131,258
Presbyteries	68	Adults baptized	2,384
Candidates	234	Infants baptized	4,687
Licentiates	54	Baptized non-communicants	32,870
Ministers	1,079	Teachers in Sunday-schools	8,880
Churches	1,998	Number in Sunday-schools	81,688
Ruling elders	6,454		
Deacons	4,852		
Added on examination	7,859		

CONTRIBUTIONS.

Sustentation	$43,770	Presbyterial	$18,006
Evangelistic	41,807	Pastors' salaries	557,781
Invalid fund	10,402	Congregational	562.102
Foreign missions	55, 53	Miscellaneous	65,415
Education	37,844		
Publication	8,426	Total	$1,384,488
Tuscaloosa Institute	8,578		

The Committee on Sunday-Schools made report of 1,146 Sunday-schools, excluding about thirty "union" schools, with 10,168 teachers and 77,557 scholars.

The total receipts of the Committee on Education for the year had been $14,317. The committee returned 187 candidates enrolled, to whom $15,705 had been remitted.

The business of the Publishing House for nine months, the period during which it had been under the care of the General Assembly's committee, had amounted to $14,620, indicating a business of $20,000 for the year. Books had been granted for distribution to the needy and destitute to the amount of $1,061. The Union Theological Seminary had been attended by forty-eight and the Columbia Seminary by thirty-four students. In the Tuscaloosa Institute for the Education of Colored Ministers, the course of study had been extended to four years. The number of students in attendance was thirty-one. The Executive Committee of Home Missions returned its total receipts at $61,076. The amount received in direct contributions from the churches ($52,992) was greater than had been reported in any previous year. The receipts for sustentation had been $25,602, while $24,900 had been spent in building and repairing houses of worship, in aiding the support of 193 ministers, and in behalf of work among the colored people. The evangelistic fund had received $8,479, and $17,555 had been paid out from it to aid 71 evangelists. The receipts of the invalid fund had been $9,892, and the payments from it $10,582, for 24 infirm ministers, 72 widows, and 7 cases of children of deceased ministers. The receipts to the Committee for Colored Evangelistic Work had been only $227; but the amount applied to that work, through the committee and other agencies, was $3,221. The sum of $41,000 was invested in the relief fund, and $3,600 paid to the families of eleven deceased ministers.

The receipts of the Committee of Foreign Missions had been $70,167. The committee reported an indebtedness of $1,377. The following is a general summary of the missionary work under the charge of the committee:

Number of missions	7
Number of stations and out-stations (about)	75
Number of ordained missionaries	23
Number of female assistants	33
Whole number of laborers from this country	56
Number of native preachers	14
Native licentiates	4
Native teachers and other native helpers	38
Whole number of laborers	112
Number of organized churches	45
Number of church-members (approximate)	1,750
Added during the year, approximately	217
Number of theological training-classes	4
Number of pupils in the same	14
Boarding-schools for boys	8
Number of pupils in the same	140
Boarding-schools for girls	6
Number of pupils in the same	180
Day-schools	12
Number of pupils in the same	225
Whole number of pupils	545

General Assembly.—The General Assembly of the Presbyterian Church in the United States met in Vicksburg, Miss., May 15. The Rev. T. D. Witherspoon, D. D., was chosen moderator. The question whether fraternal delegates should again be sent to the General Assembly of the Northern Presbyterian Church and to the General Synod of the Reformed Church in America was considered. The previous General Assembly had decided that correspondence with the general courts of sister churches with which it would maintain fraternal relations should be by letter, except that delegates should be sent to the Northern Presbyterian General Assembly and the General Synod of the Reformed Church in America "at their next ensuing sessions in 1883 and 1884 respectively," meaning the session of one body in June, 1883, and of the other in May, 1884. The Assembly decided to abide by its action of 1883. In transmitting its decision to the Northern General Assembly, it added the assurance that in taking this course it would not be understood "as receding in the least from any former expression of fraternal regard." A paper was adopted with respect to co-operation with the Presbyterian Church in the United States of America in enterprises in which the interests of the two churches may come in contact. It decided that it was impracticable to adopt a plan for co-operation in home missions that should be universally applicable throughout the Church, and that the whole matter should be left "to the working of those broad principles of justice and Christian charity which alone will restrain either Church from encroaching upon the natural territory of the other." For comity in matters of discipline, the several courts of the Church were enjoined to have due regard to the discipline of all the sessions, presbyteries, and synods of the Northern Church, expecting a reciprocal regard from them. The attention of the presbyteries and sessions was directed to the importance of taking notice of violations of the law of the Church on Sabbath observance, and it was advised that the sessions be enjoined to administer discipline, "at least so far as admonition and reproof are concerned," whenever it should be necessary. An opinion was expressed adverse to the recognition of the validity of Roman

Catholic baptism. A pastoral letter was ordered drafted for bringing the subject of family prayer before the congregations, and for impressing upon pastors the obligation of urging it upon the churches. A decision was given by the Assembly adverse to the right of a session to instruct its delegates to presbytery how to vote on a given question.

III. United Presbyterian Church of North America.—The statistical committee of this Church reported to the General Assembly in May that the number of ministers was 732; of congregations, 858; and of members, 87,637. The figures show an increase of 2 ministers, 19 congregations, and 2,194 members. An increase of 739 members was also returned from the two presbyteries in India and Egypt.

The Board of Ministerial Relief reported that their endowment fund now amounted to $45,000, it having increased $15,000 during the year. Aid to the amount of $3,600 had been distributed to 26 persons.

The Board of Home Missions had received $33,657, besides $16,191 of special funds from the Quarter-Centennial Commission, while its expenditures had amounted to $41,802. This showed a deficiency on the general account of $8,145. Aid had been granted to 209 stations, comprising, so far as was reported, 11,324 members, and on which there had been a net gain of 1,335 members. Among the missions of which especial notice was made were one to the Chinese in Los Angeles, Cal., and one to the Warm Springs Indians in Oregon.

The Board of Publication reported that the total amount of the business done during the year in that department was $53,309.

The Committee on Sunday-Schools reported 786 schools, with a total enrollment of 78,525 persons, and an average attendance of 49,940 persons. The schools had contributed, toward their own expenses and for the enterprises of the Church, $55,237.

General Assembly.—The General Assembly of the United Presbyterian Church in North America met in St. Louis, Mo., May 28. The Rev. W. H. French, D. D., was chosen moderator. Memorials were received on the question of the use of instrumental music in worship, which a previous General Assembly had determined to tolerate, some asking that no further action be taken on the subject, others that a declaration be passed forbidding the use. A memorial was presented from a convention of members of the Church which was held in August, 1883, in opposition to the admission of instrumental music, and was supported in an address by the president of the convention. The subject came up also in the report of the Committee on Home Missions, which recommended that appropriations be made to missions using organs, while the minority report urged that they be refused. The minority report was rejected by a vote of 82 to 129, and the majority report was adopted. The Judiciary Committee, to whom the memorials on the subject had been referred, made a report advising that "the request of memorialists asking the Assembly to decide that, according to the standards of our Church, the use of instrumental music in worship is unlawful, be not granted." This resolution was adopted by a vote of 113 to 84, while an amendatory resolution committing the General Assembly to the declaration that the standards of the Church authorize the use of instruments received only two votes. The Committee on Bills and Overtures reported on the subject, recommending that the Assembly treat the present settlement as final. This was adopted, while an amendment sending the question down in overture to the presbyteries was rejected. A committee was appointed to meet in conference at Pittsburg, Pa., Sept. 25, 1884, with representatives of the different psalm-singing churches in America.

IV. Reformed Presbyterian Church, Synod.—The following is a summary of the statistics of the Synod of the Reformed Presbyterian Church in the United States:

Number of presbyteries (New York, Vermont, Philadelphia, Rochester, Pittsburg, Ohio, Lakes, Illinois, Iowa, Kansas, and New Brunswick and Nova Scotia), 11; of ministers, 110; of congregations, 124; of communicants, 10,671; of persons in Sunday-schools, 1,196 teachers and 9,777 scholars. Amount of contributions, $216,893, divided as follows: for foreign missions, $13,264; for home missions, $3,840; for the Freedmen's Mission, $3,585; for national reform, $4,764; for the Theological Seminary, $2,901; for the educational fund, $16,273; for church-erection, $31,949; for pastors' salaries, $83,926; miscellaneous, $56,932.

The Board of Church Erection reported to the Synod at its meeting that it had given aid to five churches. The Synod's Committee on Finance returned the endowment funds of the various institutions and benevolent enterprises of the body at $140,052. Ten ministers were engaged in domestic missionary work under the direction of the Synod. Ten persons were employed, as missionaries or teachers, in the Southern mission, which returned 88 communicants and about 530 pupils. A Chinese mission is sustained at Oakland, Cal. The foreign mission is at Latakieh, Syria, with two stations and a mission at Tarsus. It returned 144 communicants and 25 schools, with 688 pupils.

Synod.—The Synod of the Reformed Presbyterian Church met at Northwood, Ohio, May 28. The Rev. P. H. Wylie was chosen moderator. The Synod is identified with the national reform movement, or the agitation for the adoption of an amendment to the Constitution of the United States embodying a definite recognition of the Christian religion. Three ministers had been laboring throughout the year, and four others, for a shorter time, under its direction, in advocacy of that measure. Ministers were again exhorted to press the position of dissent from the Constitution of the United States on the attention of the congregations and those around them. A question was presented to the Synod regarding the consistency with its position on this subject of voting on amendments to State Constitutions, amendments embodying the prohibition of the liquor-traffic being particularly referred to. The committee to which the subject was referred presented two reports of opposite tenor, on which action was deferred till the next meeting of the Synod. On the subject of temperance, resolutions were adopted, declaring that "duty requires us in the observance of the Lord's Supper to use a cup that contains as much as possible of the pure fruit of the vine, and as little as possible of that which intoxicates"; and that "we bear testimony to the fact that those who incorporate with the Government of these United States have fellowship with the throne of iniquity in this great sin."

V. Reformed Presbyterian Church, General Synod.—The statistics of this body are incomplete. The number of communicants under the care of the General Synod is estimated at about 6,700; of these about 3,500 are in the three presbyteries East, and the remainder in the three presbyteries West. The scholars in the Sunday-schools are in the proportion of about three to five. The salaries of the pastors range from $700 to $2,500.

The General Synod met in Pittsburg, Pa., May 21. The Rev. William J. Smiley was chosen moderator. The treasurer of church extension reported that his receipts had been $2,789, and his expenditures $2,384. The treasurer of the theological seminary returned the amount of the endowment fund of the institution as $34,791. Its receipts for the year had been $2,610, and its expenditures $2,604. The Lamb fund, the revenue of which is to be appropriated in aid of the education of young men preparing for the ministry, was represented by real estate having an assessed value of $12,800. The amount of the sustentation fund was returned at $5,310. The receipts of the Board of Domestic Missions had been $1,627. Four ordained ministers and four licentiates were employed in the work of the board. The receipts of the Board of Foreign Missions had been $3,615. The mission in India had been reopened at Roorkie, in the Northwest Provinces, under the charge of the Rev. Mr. Scott, who was assisted by five licentiates. A letter of greeting was sent to the Eastern Reformed Presbyterian Synod in Ireland. A communication was adopted to be presented to the National Conventions of the political parties about to meet for the nomination of candidates for President and Vice-President of the United States, inviting consideration of the doctrine of the supremacy of Jesus Christ, and asking them to recognize it.

VI. Cumberland Presbyterian Church.—The following is a summary of the statistics of the Cumberland Presbyterian Church, as they were returned by the stated clerk in May, 1884:

Number of presbyteries, 117; of ministers, 1,503; of licentiates, 249; of candidates, 214; of congregations, 2,462; of elders, 9,373; of deacons, 3,104; of communicants, 122,240; of persons in Sunday-schools, 68,585. Number of baptisms during the year, 6,022 of adults and 1,743 of infants; number of additions on examination, 1,960. Value of church property, $2,259,510. Amount of contributions: for church building and repairing, $174,483; paid pastors and supplies, $236,953; for presbyterial purposes, $8,436; for charity, $12,-378; total, $460,172.

The Board of Publication reported that the capital stock of the Publishing-House amounted to $59,293. The year's business had returned a net profit of $7,901.

The receipts of the Board of Ministerial Relief for the year had been $1,048. Aid had been given to eight disabled and the families of eight deceased ministers.

The Board of Education returned the receipt of $77, and reported that one hundred and three young men were studying in preparation for the ministry in the various schools of the Church. The theological department of Cumberland University possessed an endowment fund of $40,000. The Academic School of the same institution returned an interest-bearing endowment fund of $25,000.

The total receipts of the Board of Missions, including what had been paid to local treasurers, were returned at $44,474. Four stations had been added to the list of domestic missions, one station had become self-supporting, and one had ceased to exist. The whole number of stations was now fifteen. Missions were maintained among three of the civilized Indian tribes, viz., the Choctaws, Cherokees, and Chickasaws. Bethel Presbytery, in the interior of the Choctaw nation, was composed of nine ministers, eight of whom were natives, besides whom two other natives had just been ordained. A presbytery had recently been organized in the Cherokee nation, among whom three missionaries were laboring. Five missionaries were engaged in the Japan mission, and three preaching-places were maintained in connection with it. The numerical results of the labors of the missionaries had been greater than in any previous year. Twenty persons had been received into membership by baptism, and the whole number of members was 47, of whom 42 were adults and five were children. These members were scattered over a territory of about three hundred miles. A girls' school was in course of establishment at Osaka.

General Assembly.—The General Assembly of the Cumberland Presbyterian Church met at McKeesport, Pa., May 15. Mr. John Frizzell, a ruling elder, was chosen moderator. In response to a number of overtures, asking that changes be made in the "Confession of Faith" and the "Book of Discipline," a minute was adopted declaring that, whereas, the "Revised Confession of Faith" and "Form of Government" had, within two years, been approved with great unanimity by a large majority of the presbyteries, thereby becoming the faith and government of the Church, it was the sense of the Assembly that it was unwise to agitate the subject of change so soon after this had been done. The Assembly, therefore, advised all its judicatures and individual members to desist (at least for the present) from motions having that end in view.

VII. Canada Presbyterian Church.—The General Assembly of the Canada Presbyterian Church met in Toronto, June 4. The Rev. Prof. MacLaren was chosen moderator. The Home Mission Committee (Western section) reported the progress of their work in the Province of Quebec, as well as in Montreal and in the Northwestern settlements. The Committee of the Eastern section, whose jurisdiction covers the maritime provinces, returned an increase of twenty-five per cent. in the number of members connected with the stations. The French Evangelization Committee reported that it had employed 54 missionaries of all grades, including 11 colporteurs, 19 ordained missionaries, and 22 missionary teachers; and that they had 17 mission-schools with 537 pupils, 42 mission-fields, and 78 preaching-stations, with 965 families and 934 persons of French origin in full communion with the Church. It had also a mission to the Italian people in the city of Montreal. A paper in the French language was published under the direction of the committee. The mission was believed to be one of the most difficult in the world. The Foreign Missionary Committee reported on the condition of the missions in Eromanga, New Hebrides, where the gospel was preached in every part of the island, with 24 schools and 195 adult members; Trinidad (to the coolies), where 1,800 children were enrolled in the schools, and the people contributed an average of $12.60 for each communicant; and in Central India. A committee was appointed to mature a plan for the union of the two Foreign Missionary Committees (those of the Eastern and Western sections) into one. Among the more important questions discussed in the Assembly was one concerning the power of the Assembly in the matter of the institution of new theological colleges and theological professorships. An overture was presented from the Synod of Hamilton and London, asking that no new college be instituted, and no new chair be founded in an existing college by the Assembly alone. The Assembly receiving the overture, expressed its approval of the part relating to new colleges, but declined to deal with the question of power to institute new professorships. A declaration was adopted to be submitted to the presbyteries, but without committing the Assembly to its conclusions, embodying the following points on the subject of marriage with a deceased wife's sister: That the Mosaic law of incest is of permanent obligation, and marriage ought not to be within the degrees of consanguinity or affinity forbidden in the Word; that the proposition that "a man may not marry any of his wife's kindred nearer in blood than he may of his own," is not sufficiently sustained by the authority of Scripture; and that church discipline shall not be exercised in regard to marriage with a wife's sister, wife's aunt, and wife's niece. An overture was received from the Synod of Montreal and Ottawa, deprecating the evils of party politics. It declared that partisanship, by interfering with the exercise of fair-mindedness in regard to public men and public questions, and by inducing a spirit of distrust, tends to undermine the love for truth and loyalty to truth in the community; that by engendering and fostering a spirit of strife in connection with political issues, it seriously disturbs the exercise of the love and good-will that ought to prevail in a Christian land; and that, by demanding unswerving obedience to the interests of party, it prevents the free and honest expression of opinion at the polls and in the halls of the Legislature. The Assembly expressed its general sympathy with the spirit of the overture. A deputation was appointed to wait upon the Government of the Dominion, with reference to the violation of the Lord's day by the postal department, in forwarding and distributing mails, by railway companies, and by military companies and other organizations in public parades. The Assembly, expressing a hope for the ultimate total extermination of the liquor-traffic, reiterated its approval of the principle of the Canada Temperance Act of 1878, and recommended its adoption. It also advised the formation of temperance societies in congregations, and instructed the presbyteries to hold annual conferences on temperance. A congratulatory resolution was adopted relative to the union of the Methodist churches in Canada.

VIII. Church of Scotland.—The Committee on Christian Liberality of the Church of Scotland reported to the General Assembly that apart from seat-rents the contributions and legacies amounted in 1883 to £316,420, as compared with £326,201 in 1882. The condition of the more important funds of the Church, as shown in the reports of the committees having them severally in charge, was in brief as follows: The income reported by the Committee on Education on the aggregate accounts was £26,534, and the total expenditure was £26,734. Favorable reports were made of the training colleges for male and female teachers. The total receipts of the aged and infirm ministers' fund had been £3,493. The capital fund at the close of 1883 was £14,265. The Endowment Committee returned a revenue of £11,236, and reported that six new parishes, having a population of 9,800, had been endowed and erected. The Committee on Patronage Compensation had paid during 1883, £1,713, and in the whole term of its work, £10,723, to presentees in payment of reductions made by patrons from them. Of

342 parishes in which compensation had been claimed, 88 had become vacancies. The Home Mission Committee returned its year's receipts at £10,430. It had sustained 41 mission-stations, with a certified attendance of 4,777, and 75 mission churches, with 15,760 attendants; and had aided in the building, enlargement, or acquisition of 12 places of worship. The income of the Committee on Small Livings for 1883 was £4,743; and the sum of £8,073 had been distributed in July of that year.

The Committee in Aid of the Highlands and Islands of Scotland had received £845, and had paid out £939. The Christian Life and Work Committee had received £369, and had expended £479. Its operations are of the nature of mission-work in Highland parishes and at fishing-stations. The whole income for the colonial department work for the year had been £5,808 and the whole expenditure £5,909. The report related what had been done for the support of colonial churches in India, Ceylon, Cyprus, Africa, Canada, the West Indies, British Guiana, the Argentine Republic, Australia, and Feejee. The income of the Committee for the Conversion of the Jews had been £5,164, and the expenditure £5,548. The committee sustained schools at Constantinople, Smyrna, Salonica, Monastir, and Alexandria, and carried on a work of visitation to adult Jews.

The income of the Foreign Mission Committee for 1883 was £23,337, besides which £1,022 had been received up to the time of making the report for the proposed new mission to the aborigines in India. The missions are in India and China, and at Blantyre in Africa. The committee asked authority for beginning a mission among the Santals in India.

General Assembly.—The General Assembly of the Church of Scotland met in Edinburgh, May 22. The Rev. Dr. Peter Mackenzie, of Urquhart, was chosen moderator. The attention of the Assembly was largely taken up with difficulties that had arisen in connection with the mission in Calcutta. Notice was taken of the agitation in favor of disestablishment, which the committee having the subject in charge declared had failed. The Assembly resolved, concerning the divisions of Scottish Christianity, that "the General Assembly desire again to place on record their steadfast adherence to the principles expressed in the letter sent to other Presbyterian churches in 1878, in which the Assembly gave expression to their deep sense of the manifold evils arising from the ecclesiastical divisions of Scotland. The General Assembly renew the expression of their hearty willingness and desire to take all possible steps consistent with the maintenance and support of an establishment of religion to promote co-operation in good works and the reunion of churches which adhere to the same Confession of Faith. They renew their injunction to ministers to cultivate in their work the spirit of unity and habit of co-operation with the ministers of all evangelical churches."

IX. Free Church of Scotland.—The numerical returns of the Free Church of Scotland show that the number of members for the year ending May 15, 1884, was 322,265. The number of scholars in Sunday-schools was 161,210, with 46,707 others in senior classes.

A tabular statement of the amount raised for the general funds of the Church during the year 1883–'84 shows the following sums allotted to the several classes of funds: Building funds, £32,119; sustentation funds (five in number), £186,836; congregational funds, £206,078; educational funds, including Government grants and fees from pupils, £20,406; college funds, £33,657; missions, £88,554. The whole amount is £626,222.

The income for home missions had been £12,281, and the expenditure £8,451. The income for the missions in the Highlands and Islands amounted to £10,176.

The income of the Committee on the Conversion of the Jews had been £6,280. The committee supported missions and schools at Jerusalem, Breslau, Buda-Pest, Constantinople, Prague, and Amsterdam, and was about to establish a medical mission at Tiberias.

The total revenue from all sources for missions to heathen and Mohammedans was £86,941, against £77,886 in 1882. The report contained the following statistics:

Adults baptized or admitted on profession, 388; children baptized, 406; students and scholars in 6 colleges and 227 schools, 15,115 (of whom 858 were university undergraduates); native contributions, £1,604: fees from do., £11,729; communicants in 32 congregations, 4,375; principal stations, 27; branches, 118; European ordained missionaries, 38; native ordained missionaries, 12; licensed native preachers, 6; medical missionaries, 8; European missionary teachers, 37; native teachers, 250; European evangelists, 12; native catechists, 118; Bible-women in India, 13—total number of Christian agents, 494.

General Assembly.—The General Assembly of the Free Church of Scotland met in Edinburgh, May 22. The Rev. Dr. Walter Ross Taylor, of Thurso, was chosen moderator. Upon the presentation of the report of the Committee on Sunday Observance, the Assembly resolved to petition both Houses of Parliament in favor of the clause in the new police bill for Scotland making more efficient the penalties against Sabbath-trading, and to recommend to the Lord-Advocate to make it a crime against police to open shops on Sunday. Provision was made for the addition of a professorship of Natural Science to the theological faculty of Glasgow, the Church reserving the power to revise the constitution of the chair and to determine the subjects to be taught, "retaining the basis of the relation of science and theology, and adding such subjects as are cognate." The new form of subscription for deacons, having been approved by the presbyteries, was adopted.

Several overtures were presented protesting against the decision of the previous General Assembly sanctioning the use of instrumental music in worship, to which the Assembly responded that it saw no reason for reopening the question. Concerning the question of disestablishment, the Assembly resolved that, reaffirming the principles set forth in the findings of recent Assemblies, it declares the conviction that, "with a view to justice, peace, reunion among Presbyterians, and healthy action of the churches, as well on their own members as on the conduct of national affairs, disestablishment and disendowment are essential." It added that it considered that the settlement of the question had been too long delayed, and that the time had come to press it energetically upon the Legislature. The subject of aiding and encouraging efficient ministers, and considering how the Church "may deal effectually with cases in which it has become manifest that the ends of the Christian ministry are not being fulfilled," was referred to a special committee. The Assembly resolved to petition Parliament in behalf of the distressed crofters of the Highlands; also in favor of a "local-option" law for Scotland and against the opium-traffic. A proposition was approved to endeavor to raise £40,000 to aid in the extinction of congregational debts, the grants from which shall not exceed half of the debt.

X. Alliance of Presbyterian Churches.—The third General Council of the "Alliance of Reformed Churches throughout the World holding the Presbyterian System" met in Belfast, Ireland, June 24. The opening sermon was preached by the Rev. Prof. Watts, of Belfast. The Committee on Statistics presented a report which, while it was acknowledged to be incomplete, showed that there were included among the churches designated in the title of the Alliance 63 organized bodies, 1,207 presbyteries, 186 synods, 28,821 congregations, 1,561 mission-stations, 21,251 ministers, and 6,750,460 communicants. The missions of the same bodies return in the aggregate 1,065 foreign agents, 2,625 native agents, and 72,396 communicants. The functions of presiding officers were discharged by different members at the several daily sessions. The committee which had been appointed at the council which met in Philadelphia in 1880, to consider the desirability of defining the consensus of the Reformed Confessions, as specified by the constitution of the body, made a report, embodying the record of its deliberations on the subject, and its correspondence with various representative Presbyterian bodies, and announcing its conclusions to be adverse to the attempt to frame such a consensus. The report said, regarding the grounds on which this conclusion was based:

> The advantages which might arise from a satisfactory definition of the consensus seem to the committee for the present outweighed by its risks and difficulties. Some of these might be differently estimated by different minds, such as the problem of translating the venerable language of documents that have become almost sacred into the phraseology of the nineteenth century, of curtailing in form without change of spirit, of reflecting creeds that are not in all things identical by a representation in which nothing shall be missed, on the one hand, and set down to unfaithfulness or retained on the other, and charged to blind traditionalism and insensibility to modern progress. But there are other dangers which are harder to surmount. From the nature of the case, it is not easy to distinguish, in idea and in fact, two kinds of definition, the one of which would be merely historical, and the other the utterance of a new and living creed by the Alliance.

The Council, with a reservation against committing itself to all the reasoning by which the conclusion of the report was reached, and while thanking the committee for the service it had rendered, adopted as its finding, "that it is inexpedient at the present time to attempt a definition of the doctrinal consensus of the Reformed Churches." The Cumberland Presbyterian Church, which had sent delegates to the previous session of the Council, had been declined admission because it had failed to present a full and satisfactory statement of its doctrinal position. Having adopted the constitution of the Alliance, it had during the interim between the sessions perfected a revision of its creed, and prepared a definite statement of its position for the information of the Alliance. Upon the report of the committee to whom the subject of its admission was referred, the Council decided, "without pronouncing any judgment on the Church's revision of the Westminster Confession and shorter catechism, to admit the Cumberland Presbyterian Church into the Alliance," and to invite the delegates already present to take their seats. Delegates were also admitted from the Reformed Church of the Province of Austria, the Synod of the Secession Church of Ireland, the Presbyterian Church of Jamaica, and the Free Evangelical Church of Geneva. A minute was adopted, expressing appreciation of the exceeding great value of union and co-operation in foreign missionary work; and rejoicing that the churches connected with the Alliance had generally expressed an earnest desire for as large a measure of such union and co-operation as it was possible to maintain. The subjects of the constitution of mission presbyteries, and the relation of the mission churches to the home churches, and of the adoption of means for the removal of hindrances to missionary work in the various fields, and for the deliverance of preachers and converts from persecution, were commended as matters deserving special attention, and committees were appointed to consider them in connection with other topics and present them before the several churches. Recognition was also given to "the amount of union already realized or in progress in China, Japan, South Africa, Trinidad, and New Hebrides." The organization of the Alliance was perfected by the institution, with a specification of its particular duties, of an executive commission, to be appointed by the Council at each meeting, to consist

> Of not fewer than fifty members, a quorum of which, to consist of seven members in each section, shall reside within reach of a convenient place of meeting, which shall have for its chief purpose to carry out the

objects of the Alliance, during the intervals between the meetings of Council. This commission to be divided into two or more sections—viz., a European section and an American section, each of which, again, shall have power by a majority vote to add to its number and fill vacancies. They shall also endeavor to secure the organization of auxiliary Alliances. It shall be for the consideration of the Executive Commission whether separate auxiliary Alliances shall also be formed for the Continent of Europe and the colonies of Britain, or whether these shall be included in sub-sections under the other two. The commission shall report to next meeting of Council, giving an account of all its sub-sections and operations.

The financial scheme contemplates an ordinary revenue to be derived from the gifts of individuals and churches and from legacies, each church being invited to contribute one pound, or five dollars, per annum, for each delegate it is entitled to send to the Council, and individuals what they are able and willing to give. An enterprise for the publication of translations of the Latin writings of John Wycliffe, now deposited in Vienna and Prague, was commended. The next session of the Council was appointed to be held in London.

Papers were read and addresses delivered during the meetings of the Council, in accordance with a programme previously prepared, which was intended to include various subjects relating to the condition, interests, and progress of the Christian churches in general, and particularly of the Presbyterian and Reformed churches and their missions.

PRESIDENT'S MESSAGE. See page 178.

PRIME MERIDIAN CONFERENCE. See page 54.

PRINCE EDWARD ISLAND. For the latest information, see the article in the "Annual Cyclopædia" for 1883. That article was written after the adjournment of the Legislature, which has not since convened, and there are no new transactions or statistics for the current year.

PROA. See CATAMARAN.

PROTESTANT EPISCOPAL CHURCH IN THE UNITED STATES. This Church derives its origin from the Church of England, and is in communion with that Church and its branches throughout the British Empire. The year 1884 was not marked by anything specially noteworthy, and the Episcopal Church has simply gone forward in its regular work and with its usual success. The following is a general statistical summary:

Dioceses	49
Missionary districts, including Africa, China, Japan	16
Bishops	70
Priests and deacons	3,656
Whole number of clergy	3,726
Parishes (about)	3,000
Ordinations, deacons and priests	205
Candidates for orders	385
Churches consecrated	82
Baptisms—infants	39,097
Baptisms—adults	7,677
Total (including those not specified)	49,959
Confirmations	29,546
Communicants	381,609
Marriages	14,367
Burials	26,244
Sunday-school teachers	34,868
Sunday-school scholars	319,147
Contributions	$9,082,806.66

DIOCESES AND MISSIONS.

NAME.	Clergy.	Parishes.	Baptisms.	Confirmations.	Communicants.
DIOCESES.					
Alabama	27	24	268	291	4,070
Albany	122	99	1,789	1,100	14,340
Arkansas	14	18	149	58	830
California	65	25	740	390	4,306
Central New York	104	106	1,409	846	13,206
Central Pennsylvania	94	90	1,215	651	7,705
Chicago	61	40	1,084	625	7,923
Connecticut	188	145	2,015	1,411	21,238
Delaware	33	27	266	119	2,196
East Carolina	24	41	310	42	2,139
Easton	37	38	582	159	2,690
Florida	35	22	302	140	1,991
Fond du Lac	29	20	315	170	2,534
Georgia	34	35	518	329	4,569
Indiana	35	41	376	347	4,325
Iowa	54	59	578	970	4,517
Kansas	30	27	147	85	2,049
Kentucky	41	33	658	450	4,122
Long Island	107	66	1,961	1,373	16,670
Louisiana	34	41	641	351	4,126
Maine	26	22	252	215	2,467
Maryland	174	130	2,658	1,605	23,182
Massachusetts	162	105	2,587	1,258	19,941
Michigan	70	62	1,516	690	8,670
Minnesota	77	69	821	420	5,264
Mississippi	31	41	325	229	2,512
Missouri	63	47	716	515	5,433
Nebraska	31	34	267	167	2,160
New Hampshire	32	25	240	168	2,199
New Jersey	97	76	1,151	789	8,578
New York	329	191	6,058	3,678	39,625
North Carolina	54	46	570	252	2,969
Northern New Jersey	83	65	1,559	762	9,681
Ohio	64	72	833	512	6,767
Pennsylvania	208	119	3,628	2,323	25,696
Pittsburg	54	58	1,127	602	6,384
Quincy	29	24	261	176	2,180
Rhode Island	50	40	786	412	7,268
South Carolina	49	52	580	236	4,573
Southern Ohio	49	46	497	450	6,226
Springfield	33	21	344	257	2,214
Tennessee	37	33	418	345	3,407
Texas	23	29	424	262	2,570
Vermont	33	40	380	241	3,518
Virginia	155	125	1,171	1,089	18,640
Western Michigan	27	26	389	217	3,136
Western New York	107	98	1,556	1,004	18,018
West Virginia	24	26	242	202	2,363
Wisconsin	72	40	379	393	4,996
MISSIONS.					
Oregon	19	7	193	100	940
North Dakota	14	9	61	32	590
Colorado	29	12	330	155	1,917
Utah and Idaho	12	5	220	80	725
Nevada	6	..	222	33	324
South Dakota	27	7	578	106	1,270
Northern Texas	9	9	168	78	1,134
Western Texas	15	12	161	185	1,209
Northern California	14	12	160	60	718
New Mexico & Arizona	7	..	47	28	181
Montana	12	7	168	63	734
Washington Terr'y	11	8	101	23	406
Wyoming	5	..	54	19	214
West African missions	18	..	82	..	425
China missions	19	..	84	..	347
Japan missions	9	..	45	33	124
Episcopal churches in Europe	8	..	40	20	500
Total	3,656	2,933	49,959	29,546	381,609

Missions.—The Board of Missions consists of the bishops of the Church, of the members of the House of Deputies, and of the Board of Managers. It holds its sessions at the same time and place (viz., every third year) as the General Convention. The Board of Managers consists of the bishops, the treasurer of the board, and fifteen clergymen and fifteen laymen appointed triennially. The managers are charged with all the powers of the Board of Missions during the interval between the triennial meetings, and divide the work between a Domestic Committee and a Foreign Committee (each with its secretary and treasurer), with headquarters in New York city.

In domestic missions, from Sept. 1, 1883, to Sept. 1, 1884, the missionaries (14 missionary jurisdictions and 30 dioceses) were: Bishops, 13; other clergymen (white, colored, Indian), 407; teachers, catechists, other helpers, etc., 72; total, 492. The finances stood thus:

Collections, legacies, etc.	$248,716 70	
Expenditures (fourteen missionary jurisdictions and thirty dioceses)		$153,566 23
Missions among Indians		45,377 90
Missions among colored people		19,722 17
Office and other expenses		13,610 24
Cash in bank		16,440 16
Total		$248,716 70

In foreign missions, from Sept. 1, 1883, to Sept. 1, 1884, the numbers were, missionary bishops, 3; other clergy (white and native), 60; teachers, catechists, and other helpers, etc., 175; total, 238. The finances stood thus:

Collections, legacies, general fund	$120,987 90
Specials, etc	16,760 58
Treasury overdrawn	11,266 41
Total	$148,964 84

The Woman's Auxiliary to the Board of Missions has rendered efficient and valuable aid in the work of all the departments by means of parochial, city, county, and diocesan associations of ladies, who raise money, prepare boxes, and otherwise help on the missions. The following is a summary of work in 43 dioceses and 6 missionary jurisdictions:

Money raised for domestic, foreign, freedmen, and Indian missions	$48,541 13
Boxes for the same (1,888 in number), estimated value	131,616 95
Total	$180,158 08

The American Church Missionary Society (auxiliary to the Board) employed during the year, in 15 dioceses, 38 missionaries. The financial condition was as follows:

Receipts from parishes, etc	$9,572 26
Receipts for foreign missions	1,041 90
Balance in hand	1,966 75
Total	$12,580 91
Boxes of clothing, etc., sent to missionaries	32
Estimated value of boxes	$3,750 78
The society has also in legacies, securities, endowment funds, etc., nearly	$40,000 00

The Mexican League in aid of church-work in Mexico (consisting of ladies) reports that during the year ending May 1, 1884, it had received $11,091.74. Expenses, $622.28. Paid to the Foreign Committee, $6,556.50. Paid to the agent of the league in Mexico, $3,907.63. The difficulties existing a year ago in Mexican church matters, under Bishop Riley, were removed by that prelate's resignation in April, 1884. Bishop Riley has been fully exonerated from all imputations of an unfavorable nature, and the important work for sustaining the efforts in behalf of church progress in Mexico is now committed to the care of the Christian ladies constituting that league. The prospect for the future is cheering in a high degree.

Building Fund.—The American Church Building Fund Commission, established in 1880, continues its work, and the year 1884 furnishes some encouragement to persevere in the efforts to secure the $1,000,000 named as its capital with which to work in the future. The commission has rendered invaluable service in investigating the titles to church property, and adding to its security in all time to come. Applications for loans, amounting to $50,850, were received, and thirty-six loans were granted, amounting to $25,700. These were mostly in dioceses in the South and Northwest, and to missionary jurisdictions. Gifts aggregating to about $1,300 were made during the year. Cash balance in hand, $26,970.30. Total amount received for permanent fund, $54,226.95.

Work among the Jews.—The Society for Promoting Christianity among the Jews (auxiliary to the Board of Missions) reports encouraging progress. During the year twelve new missionaries were appointed; two mission-schools were established, making six in all; seven industrial schools were in full operation; the result being a total of two hundred and ninety-one workers, reaching Jews in two hundred and sixty-one cities and towns, forty-three dioceses, and thirteen missionary jurisdictions.

Receipts, etc., Sept. 1, 1884	$27,148 01
Expenditures for schools, salaries, etc.	22,065 88
Trust fund	5,084 63
Total	$27,148 01

General Condition.—During the year 1884 two bishops died, viz., Bishop Smith, the presiding bishop, and Bishop Clarkson (see OBITUARIES, AMERICAN), and fifty-seven others of the clergy. Three new bishops have been consecrated, viz., Alfred A. Watson, Bishop of East Carolina; William J. Boone, Missionary Bishop for Shanghai, China; and Nelson S. Rulison, Assistant Bishop of Central Pennsylvania. In addition to those named above, there are various other societies and organizations for carrying forward church work, as the Church Temperance Society, the Society for the Increase of the Ministry, the Church German Society, the Free Church Association, the Fund for Relief of Widows and Orphans of deceased Clergymen, and of Aged, Infirm, and Disabled Clergymen, the twelve Sisterhoods and Deaconesses, etc., all of which have done good service in the year 1884. The Episcopal Church has also under its control nine colleges, in different parts of the country, and it secures sound training for its clergy in the sixteen theological seminaries and divinity schools devoted to this end. In the way of periodicals, there are eight weekly church papers, five monthly magazines, and one quarterly, which strive to promote the interests and defend the truth as it is held and taught in this branch of the Church of Christ.

Q

QUEBEC, PROVINCE OF. The year 1884 opened in Quebec after one of exceptionally "hard times" in business, and continued in the same line as its predecessor. In January Montreal held a magnificent winter carnival, which was visited by hundreds of thousands from all parts of America. The special attractions were: The Ice Palace, a massive structure built of huge blocks of ice frozen together; the Tower, also of ice; tobogganing, or sliding down the mountain-side on flat-bottomed sleighs; snow-shoeing, skating, and curling. The success attending the 1884 carnival has encouraged the merchants of the city to make it an annual affair. One of the most picturesque views in connection with the carnival was the torch-light procession of snow-shoers in Indian file. This procession extended over seven miles, and wound in serpentine form up one side of the mountain, thence down another slope, and still downward through the city, till the Ice Tower was reached; thence up the tower by a spiral footpath, till the leader stood, torch and banner in hand, on the pinnacle.

Legislation.—One important act was the taxing of banking institutions, capital, etc. The act was contested by the banks, but the Supreme Court ruled it to be within the jurisdiction of the province. An appeal to the Privy Council of Great Britain has been entered.

Lively interest in provincial politics was aroused during the year by disaffection or disagreement among the Ultramontane or Blue party in the Legislature. Some startling revelations of a questionable nature, which implicated prominent members of a wing of that party, became public, but the questions were dropped, and the breaches were closed up.

The New Territory.—Attention has been much centered on the northern portion of the province, from the fact of Ontario's having won her case against Canada. Exploring parties have reported immense tracts of farming, mining, and timber lands within easy reach of either James's Bay or the St. Lawrence. A railway is partly constructed, leading from Quebec northward to and beyond Lake St. John. The priests and French Canadians in general have been endeavoring to repatriate the thousands of their fellow-countrymen living in the New England States and the other Canadian provinces, and to settle them in the fertile districts toward the northern part of their province. Several thousands of French Canadians returned home during the year. There were also some thousands who departed to the United States for the winter.

Dynamite.—An attempt to blow up the new Provincial Parliament buildings was made during the summer of 1884. One wing was pretty badly wrecked. Fortunately, no lives were lost, there being no one in the wing at the hour of the explosion. Various causes were assigned, but the result of the investigation criminated no one. Little political importance was attached to the event.

The Lyman Lunacy Case.—Great interest was centered in a case of lunacy, or of pretended lunacy, in Quebec Province, during the latter part of the year. A Mrs. Lyman, confined in an asylum under provincial control, was pronounced by a board of surgeons to be entirely sane. An attempt was made to keep her in confinement after this; but a terrible storm of public opinion was met, and she is now at liberty. During her imprisonment she repeatedly sought, through the nuns in charge, to have her case investigated, but, for reasons not made public, her requests were unheeded. The result has been a complete investigation into all similar institutions in the Province.

The British Association honored Montreal by holding the annual meeting for 1884 in that city. (See ASSOCIATIONS FOR THE ADVANCEMENT OF SCIENCE.)

Crops.—The crop returns from Quebec are few and unreliable, but from general report and observation the year's returns seem to have been somewhat better than the average. Improvement is being made in the farming in the province, but very slowly, except among the English-speaking portion of the people. The Eastern Townships, the counties along New York, Vermont, and New Hampshire, show the greatest advancement. Fine grades of cattle, horses, and sheep are to be found with many of the leading farmers there.

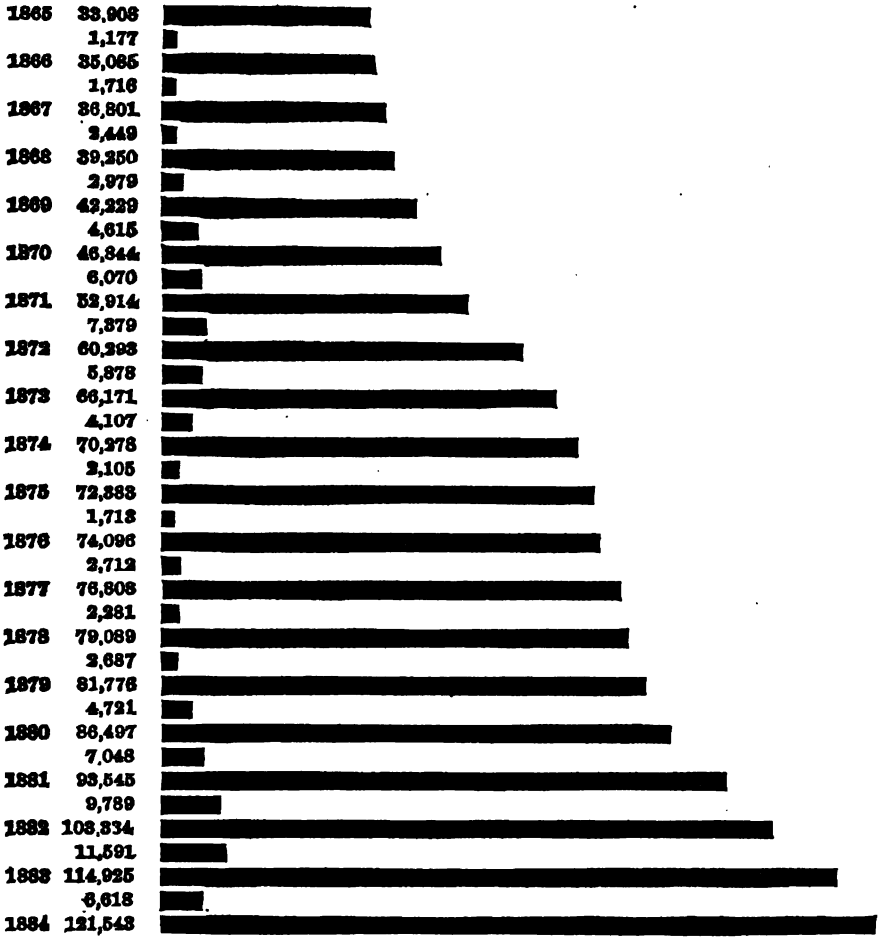
Religious Agitation.—The Salvation Army, like the Scott Act advocates, make Quebec Province their last place assaulted in Canada. This year the Army attacked Montreal, and were subjected to considerable persecution by the lower classes. Father Chiniquy, a reformed priest, was again mobbed on the occasion of his holding religious services in Montreal. The Salvation Army leaders were brought before the courts in Montreal, and the old French laws (granted them in 1774) were called into requisition to forbid the Army's doing duty in the city. The judges held that the army was not at enmity with Catholicism, and hence discharged the leaders. The case was strongly supported on behalf of the Army by some of the most prominent Protestant gentlemen in Montreal, which may have caused a more liberal interpretation of the old laws than under other and less favorable circumstances would have been given them.

QUEBRACHO. See DRUGS, NEW.

R

RAILWAY SERVICE OF THE UNITED STATES. Fifty years since there were less than 1,000 miles of railway in operation in the United States. At the close of the civil war the number of miles had reached a little over 33,000. In January, 1885, we have over 125,000. The nominal cost of the service has been over $7,500,000,000. The actual cost has doubtless been over $6,000,000,000. At the latter sum the value of railway property is over 20 per cent., or one fifth part, of the value of all the capital of the country. That is to say—omitting land, whose value is given to it only in proportion to the capital that is placed upon it or the use to which it is put, and by the facilities that are given for the movement of its products—the present value of all the buildings, works, mines, dwellings, farm-machinery, and improvements, together with all goods and wares of every description on sale, and including household furniture, mechanics' tools, and all railways, canals, improvements of mines, oil-wells, and the like, can not exceed $30,000,000,000. Neglect the land for two or three years, and it reverts to a state of nature; the warehouse of twenty-five years' date is hardly suitable for the purposes of modern commerce; close the dwelling and it will soon be ruined; neglect the mill for a single winter, and its wheels may never start again; what moth, rust, and frost do not destroy, the inventor, more destructive than either, renders valueless by substituting improved works or machinery by which more work can be done with less labor. Even the superstructure of the railroad may be destroyed, but the opening of the

Miles of Railroad in Operation on the 1st January in Each Year and the Miles Added in the Year Ensuing.

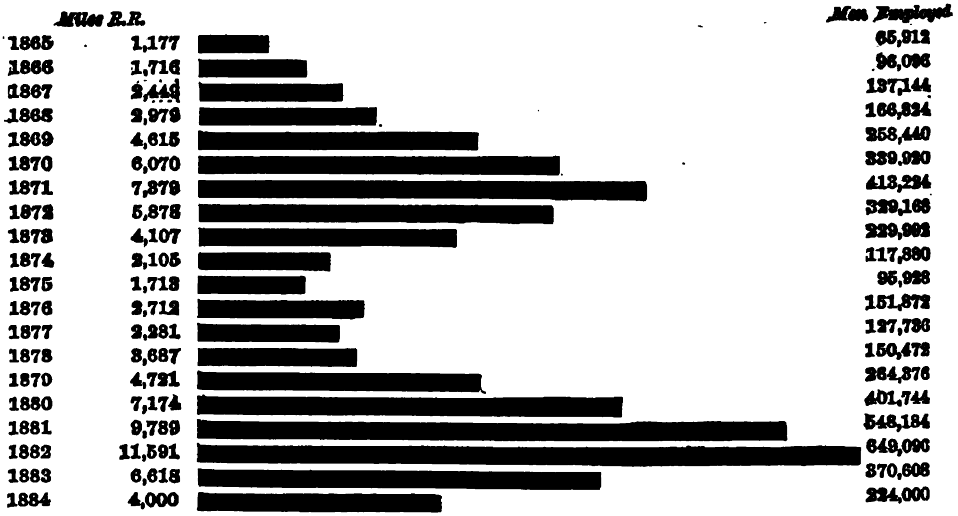


way is permanent, and it is almost the only permanent result of human labor. The only work that remains of the Roman Empire, except ruined buildings, is the Roman road that opened the way to the conquest of nations, and may even now serve the peaceful ends of commerce.

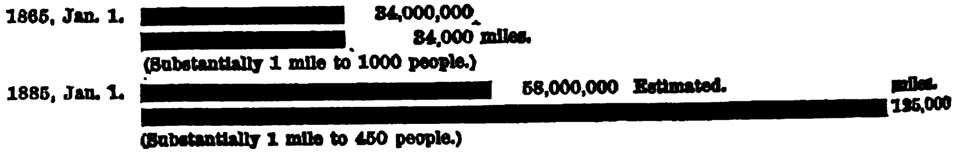
We may date the process of completing the through lines of railway of this country, both North and South, as well as East and West, since the end of the civil war. The consolidation of Eastern and Western lines was begun by the late Cornelius Vanderbilt in 1869, when the New York Central and Hudson River line was united under one control with the Lake Shore and Michigan Southern, making a through line from New York to Chicago under one administration. Our progress in railway construction since 1864 may be comprehended most fully by the use of graphical tables.

It will be observed that this progress in construction has been affected by what may be called great waves, culminating at two dates, to wit, in 1871 and in 1882, which years were followed by periods of great commercial depression. These waves may be shown more effectively if the construction be shown separately.

The construction of a railroad represents in greater measure than almost any other form of capital a given and measurable amount of direct human or manual labor, coupled with but a moderate application of labor-saving machinery or capital. It represents more than almost anything else a conversion of human labor, but little assisted by capital in labor-saving machinery, into one of the most effective forms of fixed capital. It is the work of the digger and the delver, of the navvy, the track-layer, and the woodman that cuts the ties, as well as of the iron and coal miner, the smelter, and the operative in the rolling-mill, supplemented by the work of a relatively small number of mechanics in building stations and equipment. We can only reduce the construction of a railway to terms of so many men's labor for a given period in a very broad and general way, but even in this manner we may make an approximate estimate of the force employed one year on each mile. If we assume that, without paying any regard to the nominal amount of security issued, each average mile of railway construction has cost $25,000 in gold, this sum represents, or might be converted into, the work of 50 men for one year at $500 each, or of 62 men at $400 each. A fairly approximate measure of the number employed would be midway, or 56 men. If the average pay is less, the number of men will be greater per mile per year. At this high ratio of wages, the force employed in the construction of railways has varied in the proportions set against the mileage-table in the following diagram. I use intentionally, in this case, a high average rate of earnings and probably a low money cost per mile, in order not to exaggerate the number of men employed. Making use of these approximate data, the railroad construction of twenty years may be represented by the following diagram:



The relative gain in comparison with population is as follows:



Upon the above basis, there were, in round figures, 650,000 men employed in the construction of railways in 1882. The number of miles in operation in that year was also, in round figures, 100,000. Upon the data of the special census report of 1880, compiled by Mr. Schumann, it appears the number of employés in the service of railroads, including laborers, in that year, was five a mile. At this ratio, the force engaged in the operation of railways in 1882 was 500,000. Total force engaged in construction or in the service of existing lines in 1882, 1,150,000. According to the census of 1880, the total number of all persons engaged in every kind of gainful occupation in the census year was 17,392,000, divided as follows: In agriculture, 7,670,493; in professional or personal service, 4,074,238; in trade and transportation, 1,810,256; in manufacturing, mechanical, and mining industry, 3,837,112.

Assuming that the large immigration of 1881–'82 had caused an abnormal increase of our population, the number of persons in all gainful occupations in 1882 may be computed at 7 per cent. increase, giving the following result: Agriculture, 8,207,428; professional and personal service, 4,359,532; trade and transportation, 1,936,973; manufacturing, mechanic arts, and mining, 4,105,709; total, 18,609,642.

Upon this basis it would appear that in the year 1882 one person in sixteen and a fraction, of all who were occupied in any kind of gainful occupation, was employed either in the construction or operation of a railway; or one in nine of all engaged in all other occupations than agriculture.

Next it will be observed that not fewer than 425,000 of those engaged in the construction of railways were thrown out of that employment in 1884, constituting 4 per cent. of all that were occupied in other employments than agriculture in 1882, or 20 per cent. of all common laborers aside from farm-laborers. To this great force seeking other work has been added a great army of immigrants, lessening but little in number each year. In this competition of common laborers for work not readily obtained within their capacity, except upon farms, may we not find an explanation of the periods of diminished consumption, which cause commercial depression and financial crises? These periods of depression are more apt to be attributed to an excessive expenditure or consumption of capital in the railroads themselves; but this explanation will not serve. The capital expended in railway construction consists of iron, coal, timber, grain, meat, and other products of the soil or of the mine, and each of the crises that have followed the apparently excessive railway construction of 1871 and 1882 has been charged to an overproduction of these very commodities, when in fact the cause of depression has been diminished consumption. On the other hand, nearly every mile of railway built in 1871 has justified its existence by its utility, even if it has not been profitable to its owners. In the same way, nearly every mile of the still greater construction of 1882 will be justified in use, if not in value to its owners, except such speculative absurdities as the lines that have been built parallel with the New York Central and Lake Shore, from the Hudson River to Chicago. It has been the speculative method, rather than the measure of railway construction, that has provoked disaster. This country is not yet half served with the railway mileage that will soon be necessary to its use, especially in the prairie sections, where the "dirt-roads" are utterly inadequate to the traffic, and the material for a solid highway suitable for wagons is wanting.

We have passed through the period of railroad inception and of detached sections or lines, through the period of consolidation, through the period of needed extension of through lines, through the period of speculative construction of useless parallel lines, and we have now reached the period of adjustment to wholesome conditions, and of construction limited to the necessity for cross-ways, side-lines, special or local roads, and the more complete connection of the entire system of the country. This latter necessity may soon require new construction at the rate of 6,000 miles or more per annum.

Soon after Jan. 1, 1881, the writer prepared the following table (see page 680) in order to show the inadequacy of the railway service of the country, then numbering 93,545 miles, as compared with the adequate service of the State of Massachusetts. To this table is now added a column showing the number of miles in each State on the 1st of January, 1884. The mileage added in 1884, computed at 4,000, has not yet been subdivided. I have no data for computing the additions in other countries, but they are relatively very small as compared to this country.

The United States had substantially one mile of railway to each 540 inhabitants in 1881; in 1885, one mile to each 450 persons. Europe has one mile to each 3,000 inhabitants, if Russia be included; about one mile to each 2,540, exclusive of Russia.

In this treatise of 1881, the writer ventured to forecast the probably necessary construction of railways, in order to give other sections of the country a service in some degree commensurate with that of Massachusetts, and for this purpose he prepared the following tables, for which no claim could be made, except as an approximation to the probable need. In establishing the ratios in this rough-and-ready way, consideration has been given to the general configuration of the several States and Territories, to the probability of diversity of occupation, to climate, and in some measure to relative fertility. Of course, the divisions are very general, and can only give an approximate idea of the future construction. It will be seen that about 117,500 miles of new railroads may be required, which, at the rate of construction

RATIO OF MILES OF RAILROAD TO THE AREAS OF STATES AND COUNTRIES—UNITED STATES AND EUROPE.

Jan. 1, 1884.	Name.	Area.	Miles railroad Jan. 1, 1881.	One mile to square miles.	Per cent. of standard.	Rank in size.
1,979	Massachusetts ..	7,800	1,893	4·12	·9708	67
	Belgium........	11,373	2,672	4·26	·9390	62
	England & Wales	58,320	12,547	4·64	·8620	29
1,874	New Jersey	8,320	1,701	4·89	·8179	63
963	Connecticut.....	4,750	954	4·98	·8032	68
211	Rhode Island...	1,306	210	6·21	·6441	71
7,217	Ohio............	39,964	5,912	6·75	·5925	44
9,028	Illinois	55,414	7,955	6·96	·5741	32
7,236	Pennsylvania ...	46,000	6,248	7·36	·5434	40
282	Delaware.......	2,120	280	7·57	·5284	69
5,543	Indiana.........	33,809	4,454	7·59	·5270	50
1,042	New Hampshire.	9,280	1,015	9 14	·4376	65
	Switzerland.....	15,233	1,598	9·53	·4197	59
7,349	New York......	47,000	6,019	9·80	·4081	39
7,216	Iowa...........	55,045	5,235	10·51	·3805	33
	German Empire.	212,091	19,840	10·69	·3742	4
	Scotland........	30,685	2,864	10·71	·3734	52
1,119	Maryland......	11,125	1,012	10·99	·3639	66
937	Vermont........	10,212	912	11·19	·3574	64
	Ireland.........	31,874	2,285	13·95	·2867	51
5,151	Michigan.......	56,451	3,932	14·36	·2785	31
	France	204,091	14,152	14·42	·2774	5
	Denmark.......	14,553	968	15·03	·2661	60
	Netherlands	20,527	1,890	15·49	·2582	57
4,619	Missouri........	65,350	4,011	16·29	·2455	26
4,089	Wisconsin	53,924	3,130	17·22	·2323	34
	Austrian Empire	240,943	12,300	19·59	·2042	3
2,553	Virginia........	38,348	1,826	21·00	·1904	45
	Italy	114,296	5,191	22·01	·1818	13
2,938	Georgia	58,000	2,535	22·87	·1749	30
3,964	Kansas.........	80,891	3,439	23·52	·1700	22
1,852	Kentucky.......	37,680	1,598	23·58	·1696	46
1,549	South Carolina..	34,000	1,429	23·79	·1681	49
2,112	Tennessee	45,600	1,824	25·00	·1600	42
3,906	Minnesota......	83,531	3,108	26·87	·1488	21
2,059	Alabama........	50,722	1,851	27·40	·1459	36
948	West Virginia...	23,000	694	33·14	·1207	55
	Roumania	45,642	1,374	33·21	·1204	41
1,812	North Carolina..	50,704	1,499	33·82	·1182	37
1,099	Maine	35,000	1,013	34·55	·1157	48
2,696	Nebraska.......	75,995	2,000	37·99	·1052	23
1,616	Mississippi......	47,156	1,183	39·86	·1003	38
	Spain...........	177,781	4,203	42·30	·0944	6
	Portugal........	36,510	751	48·61	·0823	47
	Sweden..	168,042	3,392	49·54	·0808	7
1,782	Arkansas........	52,198	896	60·06	·0666	35
1,204	Louisiana.......	41,346	633	65·33	·0612	43
2,832	Colorado........	104,500	1,531	68·25	·0586	16
2,881	California.......	157,801	2,220	71·08	·0560	8
	Turkey..........	62,028	786	78·91	·0507	27
6,075	Texas	274,356	3,293	83·31	·0480	2
1,124	Utah...	84,476	770	109·70	·0364	20
1,157	Florida...... ..	59,268	530	111·82	·0357	28
2,495	Dakota.........	150,932	1,265	119·31	·0330	7
	Russia in Europe	2,261,244	16,715	135·22	·0296	1
948	Nevada.........	112,090	769	145·76	·0273	15
	Norway	122,280	759	161·06	·0248	11
950	Oregon	95,274	582	163·70	·0244	18
	Bulgaria........	24,860	140	174·60	·0229	54
1,140	New Nexico	121,201	643	188·49	·0212	12
625	Wyoming.... ..	97,883	472	207·38	·0192	17
853	Indian Territory.	68,991	275	250·87	·0159	25
498	Washington.....	69,994	274	255·45	·0156	24
866	Arizona.........	113,916	384	296·65	·0134	14
777	Idaho...........	86,294	220	392·24	·0102	19
	Greece..........	19,941	7	2,848·71	·0014	58
1,082	Montana........	143,776	48	2,995·33	·0013	10
	Bosnia and Herzegovina......	28,125	..	......	....	53
	Servia..........	20,850	..	......	....	56
	East'n Roumelia.	18,500	..	......	....	61
	Montenegro.....	1,770	..	......	....	70
	Andorra........	198	..	......	....	72
121,592						

of the year 1881, will occupy the next fifteen years. It would, however, be safer to consider twenty years as the period that will be needed for this construction, as we may assume at least one commercial crisis and a railway panic in the next seven years, by which our progress may for a time be a little checked. The States and Territories are divided into five classes: Class I is assumed to need very soon a railway service equal to that of Massachusetts at present, to wit, one mile to four square miles; Class II, half as much, or one to eight; Class III, one quarter as much, or one to sixteen; Class IV, one eighth as much, or one to thirty-two; Class V, the present Territories, one sixteenth, or one mile of railway to each sixty-four miles of territory:

Massachusetts.......In 1881......1,950 miles=100 per cent.

CLASS I.—ONE MILE TO FOUR SQUARE MILES.

STATES.	Miles in operation Jan. 1, 1881.	Needed.	Total, say A. D. 1900.
Rhode Island..................	210	116	326
Connecticut	954	233	1,187
New York.....................	6,019	5,731	11,750
New Jersey	1,701	379	2,080
Pennsylvania	6,248	5,257	11,500
Delaware.....................	280	250	530
Maryland	1,012	1,769	2,781
Ohio	5,912	4,079	9,991
Indiana	4,454	3,998	8,452
Illinois.......................	7,955	5,898	13,853
Iowa................... ...	5,235	8,526	13,761
Total......................	39,975	36,236	76,211

CLASS II.—ONE MILE TO EIGHT SQUARE MILES.

New Hampshire...............	1,015	145	1,160
Vermont	912	365	1,277
Michigan......................	3,931	3,125	7,056
Wisconsin.....................	3,130	3,610	6,740
Missouri	4,011	4,158	8,169
Virginia.......................	1,826	2,967	4,793
West Virginia	694	2,181	2,875
South Carolina	1,429	2,821	4,250
Georgia	2,535	4,715	7,250
Kentucky	1,598	3,112	4,710
Total......................	21,081	27,199	48,280

CLASS III.—ONE MILE TO SIXTEEN SQUARE MILES.

Minnesota.....................	3,108	2,113	5,221
Nebraska......................	2,000	2,750	4,750
Kansas.........................	3,439	1,617	5,056
North Carolina...............	1,499	1,671	3,170
Tennessee.....................	1,824	1,026	2,850
Mississippi	1,183	1,767	2,950
Alabama	1,851	1,319	3,170
Arkansas................. ..	896	2,366	3,262
Louisiana	633	1,952	2,585
Texas	3,293	13,854	17,147
Indian Territory......	275	4,037	4,312
Total......................	20,001	34,472	54,473

CLASS IV.—ONE MILE TO THIRTY-TWO SQUARE MILES.

Maine...................	1,013	81	1,094
Nevada	769	2,731	3,500
Colorado	1,531	1,734	3,265
Oregon........................	582	2,395	2,977
California.....................	2,220	2,711	4,931
Total......................	6,115	9,652	15,767

CLASS V.

Florida........................	530	396	926
Dakota.........................	1,265	1,093	2,358
Wyoming	472	1,057	1,529
Washington	274	819	1,093
Montana	48	2,198	2,246
Idaho	220	1,128	1,348
Utah..................	770	550	1,320
New Mexico..................	643	1,251	1,894
Arizona	384	1,396	1,780
Total......................	4,606	9,888	14,494
Grand total............	91,778	117,447	209,225

Assuming these railways to be completed, either in the States to which the new mileage has been assigned, or in some others, the proportion of the total mileage (209,000) to the area of the United States (omitting Alaska) will then be only one mile to about fifteen square miles. In other words, the United States (omitting Alaska) would then be about one quarter as well served as Massachusetts now is.

The average construction called for in this estimate was 6,250 miles a year from the 1st of January, 1881. The actual construction from Jan. 1, 1881, to Jan. 1, 1885, estimating 1884 at 4,000 miles, has been 28,047 miles, or at the rate of 7,000 miles a year.

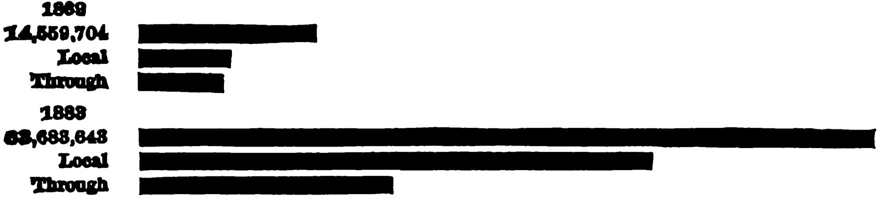
It may be asked, What inducement will there be for the construction of the additional mileage that will be required in order to justify this prediction, if existing lines fail to pay a profit on their operation? To this question several replies may be given: 1. Had all the railways now in existence been constructed on a cash basis, and had they been represented by stock and bonds that had been subscribed and paid for in good money, they would as a whole have represented a profitable investment to their owners, and would even now yield a reasonable income on their cost. 2. Railways are becoming the necessary substitute for common ways for local or cross-country traffic, and they must be constructed for such purposes, even if for a time they fail to pay in income directly, because indirectly they give value to otherwise almost useless land, and they create the very traffic that will sustain them. How this traffic is created by the railways can best be shown by comparing the increase of the grain-crops of the United States with the extension of the railway mileage; and, although during the past four years the railway mileage has been forced in apparently too great a measure, yet the same rule may hold in each period of ten or twenty years:

GRAIN-CROPS OF THE UNITED STATES.

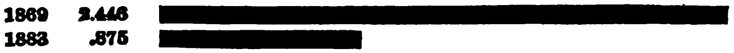
YEAR.	Bushels.	YEAR.	Bushels.
1865	1,127,499,187	1875	2,032,235,300
1866	1,348,027,868	1876	1,962,821,600
1867	1,329,729,400	1877	2,178,934,646
1868	1,450,789,000	1878	2,302,254,950
1869	1,491,412,100	1879	2,434,884,541
1870	1,629,027,600	1880	2,448,079,161
1871	1,528,776,100	1881	2,066,029,570
1872	1,664,331,600	1882	2,699,394,496
1873	1,538,892,891	1883	2,623,319,069
1874	1,455,180,200	1884	2,981,920,333

Another example of the way in which the extension of the railway service may build up a single State, and thereby ultimately become profitable to its owners through the increase of local traffic, may be found in the conditions of the railway service of the State of Ohio. The data are taken from the report of Commissioner Sabine. This State lies midway between East and West. In 1883 it contained 6,897 miles of railroad, against 3,324 in 1869. In 1869 the actual tons moved over all the railways reporting in the State numbered 14,559,704, of which 55 per cent. represented local traffic and 45 per cent. through traffic. In 1883, 63,683,423 tons were moved, of which 66⅔ per cent. represented local traffic and only 33⅓ per cent. through traffic, showing how the local traffic gains, both absolutely and relatively. The charge per ton per mile in 1869 was 2·448 cents; in 1883, only ·875 cent per ton per mile. Graphically the Ohio railroad traffic may be represented in this way:

Tons Moved.



Charge per Ton per Mile.



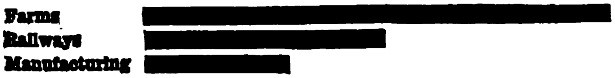
The actual freight charge on all the railroads reporting in Ohio in 1883 was, in round figures, $67,000,000. Had this traffic been subjected to the charge of 1869, the sum would have been $201,800,000. The difference between these two sums is, in currency, $134,800,000; in gold, $89,400,000. Since two thirds of this traffic was local, the saving in the cost of the transportation of the commodities used by the people of Ohio themselves, on their local traffic only, was $60,000,000 in gold in a single year. This saving of a single year would suffice to construct 2,000 additional miles of railway in that State at a cost of $30,000 a mile; i. e., to increase the mileage of the State 30 per cent. It is therefore apparent that the indirect profit of railway service is so great as to compel the rapid extension of the work, even if the new lines may yield no immediate income to their owners.

In the introduction to the "Railway Manual" of 1870–'71, Mr. Henry V. Poor made this statement: "Over ordinary highways, wheat and Indian corn, the most valuable of our cereals, will bear transportation only 250 and 150 miles, respectively, to markets where the value of the former equals $1.50 and the latter 75 cents a bushel. Beyond such limits, and with no other modes of conveyance, the more important products of the farmer have no commercial value." To-day wheat can be carried 5,000 miles by rail and sea and sold at $1 a bushel, and corn can be carried 1,500 miles by rail and sold at 50 cents a bushel, and yet leave a profit to the farmer whose industry is mainly devoted to these crops.

Reverting again to the census of 1880, the absolute necessity for adequate railway service may be implied from the ratio that the value of railway property then bore to the capital specifically represented by farms and manufactories. In respect to these figures it must be premised that the valuation of farms is probably underestimated, that the capital in railways included the "water" that is now being squeezed out, and that the capital in manufactories was probably overestimated. In considering the relation or proportion that these great branches of industry bear to each other, we may therefore assume: 1. That the proportion of the national capital in improved lands and farm-buildings, i. e., in the instrumentality of primary production, is herein stated too low. 2. That the capital in manufacturing, i. e., in the instrumentality of conversion of crude materials into finished goods, and the capital in railways, i. e., in the chief instrumentality for distribution, are herein stated too high, but that the figures of the census fairly represent their relation or proportion to each other. Omitting fractions, the respective capitals in these three great departments of industry were in 1880 as follow, as given in the census:

Farm-lands and farm-buildings	$10,200,000,000
Railways	5,200,000,000
Manufacturing (under 332 heads)............	3,000,000,000

Graphically represented, the relative proportion of these capitals is as follows:



It will be observed that the valuation of the farms includes the land. If we separate farm-buildings, machinery, tools, and appliances from land—that is to say, separate all the actual capital upon the farm from the land—and add this sum to the capital in manufactures, the total productive capital in both agriculture and manufactures was about the same as, perhaps a little more than, the single capital in railways. This brings into the clearest light the relative importance of distribution. In this country there is always enough for all; but where is it? Our productive capacity is unlimited, and the main question is one of distribution. The railroad has solved a part of this problem; but there are more complex questions yet to be solved. It costs a third of the price of a baker's loaf to get a loaf of bread away from the oven, after it is baked, to the mouth of the consumer; but this is a side issue, affecting the cost of distribution in detail, which can not be taken up in this connection, as it forms no part of a treatise on railways; but yet the relation of the railway to the supply of food may well be considered.

Food, fuel, and materials for shelter constitute 80 to 85 per cent. of the merchandise moved over the railways of the country; fibers, clothing, metals and metal-work, and miscellaneous articles, 15 to 20 per cent. The way in which the production and distribution of the more bulky articles of traffic are promoted by the construction of railways, and in return sustain them in their use, must be shown by diagrams of a sectional order, because the several great sections of this country represent very different conditions of soil and climate, and also different conditions affecting the production and use of grain, fiber, fuel, metal, and timber. In the following table the proportional movement of passengers and merchandise is shown by sections, divisions being made according to the nature of the traffic:

SECTION 1. New England States. Food and fuel moved in, and manufactures moved out and distributed.

SEC. 2. Middle States. New York, New Jersey, Pennsylvania, Delaware, and Maryland. Food moved in and through, fuel and metal moved out, and manufactured goods moved out and distributed.

SEC. 3. Western States. Ohio, Michigan, Indiana, Illinois, Wisconsin, Minnesota, Iowa, Kansas, Missouri, and Nebraska. Food and timber moved out, manufactures moved in, and fuel, etc., distributed.

SEC. 4. Southern States. Cotton, wool, hemp, tobacco, and some metal moved out, food and manufactures moved in, and local distribution.

SECTION.	Miles of railroad.	Passengers carried.	Passengers per mile.
1. N. E. States. ...	6,328	72,877,556	11,446
2. Middle States....	17,181	126,854,067	7,876
3. Western States..	60,525	88,828,759	1,886
4. Southern States..	26,185	17,458,579	668

The possibility of moving merchandise long or short distances by rail at low rates of traffic can only exist upon lines that carry large quantities; and the quantity to be carried is a matter of section, soil, climate, and other natural conditions, over which Congress can exert no influence. For instance, the grain-crop of an average year weighs 75,000,000 tons, but the cotton-crop and the wool-clip combined weigh less than 2.000,000 tons. The products of the forest weigh 25,000,000 tons. The product of metal of all our mines of iron, copper, and lead and zinc, weighs less than 6,000,000 tons. The annual output of coal, most of which is moved to some extent by the railway, is between 90,000,000 and 100,000,000 tons. Meats we have no present means of computing, but by comparisons of the quantities consumed with those of grain and other kinds of food, provisions and salted meats can not be less than 20,000,000 tons, and are probably moved in greater measure by duplication in the way of distribution. It therefore follows that very low rates of charge for carrying freight by the railway are only possible on the lines that carry grain, coal, timber, or provisions in bulk. I do not intend to say that this is the sole factor in the question of low rates, but it is a controlling factor. In order that the work of a railroad may be done at the lowest possible cost, there must be enough work to keep the force employed up to the full measure of its capacity, whether it be the force of men, locomotives, or cars.

Freight is given, in the following table, both in the actual tons moved by railroad in each section, and also the tons per mile moved in each section—that is to say, the actual tons moved any distance, long or short, i. e., the dead-weight of merchandise carried any distance, and also what is called the ton-mileage, which is what the traffic would represent if each ton moved were moved exactly one mile:

SECTION.	Miles of railroad.	Tons carried.	Tons per mile.	Tons carried one mile—proportion to each mile.
1. N. E. States......	6,323	30,670,218	4,850	285,797
2. Middle States.....	17,181	186,736,924	10,900	986,890
3. Western States...	60,525	144,858,216	2,393	356,585
4. Southern States..	26,135	31,014,619	1,187	126,292

Reference has been made to the paramount importance of articles of food in the traffic of the railways. Grain, meats, dairy products, and other articles of food, constitute not less than half the quantity of merchandise that is moved over the various lines; but, as a matter of course, the railway lines of the Middle States take by far the larger part of this traffic. The valuation put upon the products of agriculture in the census year by Mr. J. R. Dodge, statistician of the Department of Agriculture, was as follows, for the crop of 1879:

Meats, dairy products, and eggs, valued at the farm	$1,332,500,000
Grain, valued at the farm	1,336,538,399
Hay, valued at the farm	409,505,783
Vegetables, valued at the farm	190,262,462
Sugar, sirup, and honey, valued at the farm	43,500,155
Total food	$3,312,306,799
Fibers, cotton, wool, hemp, etc	340,423,398
Tobacco	38,758,215
Flax and other seeds	22,478,183
Wines and beeswax	12,864,877
Total	$3,726,831,422

There are some duplications in this estimate, as of hay and grain, which are in part converted into meat; but these are farm values. Transportation by rail to points of final distribution or export added not less than $200,000,000 to this sum, and before the food reached the consumers a very large addition must be made for the final cost of distribution. An approximate estimate of the ultimate value of the food consumed by man within the limits of the United States may be made from the ascertained facts in respect to the cost of the food of a given number of persons. The following table may serve for this purpose.

The respective quantities of food served to eighty adult women working in factories in Maryland, and of seventeen mechanics and eight women in Massachusetts, are first given, and it may be assumed that the average of the two tables represented in the third column would be no more than a fair daily ration for all adults. Such an average would represent a cost of 23·85 cents per day, or $1.67 per week. In the following table the two rations are given, and the average per day. The weekly and yearly average per person and the sum and proportions of the average if served to a population of 57,000,000 are computed as equivalent to 50,000,000 adult consumers, as our population is now or soon will be:

	Per day, Maryland.	Per day, Massachusetts.	Average.	At average week.	At average year.	At average 50,000,000.
	Cents.	Cents.	Cents.			
Meat, poultry, and fish	7·58	11·82	9·70	·6790	$35.31	$1,765,000,000
Dairy and eggs	3·84	7·37	5·60	·3920	20.38	1,019,000,000
Flour and meal	2·09	2·90	2·50	·1750	9.10	455,000,000
Vegetables	2·39	1·58	1·98	·1386	7.21	360,500,000
Sugar and sirup	1·98	1·90	1·94	·1358	7.06	353,000,000
Tea and coffee	0·86	1·18	1·02	·0714	3.71	185,500,000
Fruit, green and dry	0·50	0·73	0·62	·0434	2.26	113,000,000
Salt, spice, ice, etc	0·46	0·52	0·49	·0343	1.78	89,000,000
Total	19·70	28·	23·85	$1·6695	$86.81	$4,340,500,000

This ration is above the average, both in quantity and variety, especially in respect to the colored and poor white population of the South, but it will be observed that this supply of food represents purchases made in considerable quantities, and substantially at wholesale prices. It can be readily proved that the less sufficient rations which are purchased at retail would and do bring the total cost of food up to at least $5,000,000,000, to which must be added for drink not less than $400,000,000.

Upon this basis the proportionate expenditures of the people of this country for food and clothing, and also for the shelter of the increase of population, may be approximately deduced, and will be found in the following table:

1. Food on the basis of the ration served to factory operatives in Maryland and New England. Drink as recently computed by David A. Wells:

Food	$4,340,500,000
Drink	474,823,000
Total	$4,815,323,000

2. Clothing ready for use—carpets, blankets, laces, and all other articles made from vegetable or animal fibers, on the basis of a computation from the census returns, the figures of the imports, and an estimate of the cost of converting cloth into clothing, etc.

Clothing............................ $1,740,000,000

3. Shelter for the increase of population, now approximating 2,000,000 per year, on the basis of one dwelling or part of a dwelling to each five persons, at an average cost of $500, or $100 per capita:

Shelter............................... $200,000,000

The relative importance of food, as compared with some other important articles of production, may be realized most fully by contrasting the value of dairy products and eggs at the ratio of the consumption of the factory operatives, whose ration has been given in the previous table, with other commodities which assume a more conspicuous place in public estimation.

At the standard of the average consumption of adult men and women who are engaged in factory-work in Massachusetts and Maryland, the average sum expended for dairy products, carefully purchased in considerable quantities, for milk, butter, cheese, and eggs is five and six tenths cents per day ($5\frac{6}{10}$), for which sum expended each one is supplied with about half a pint of milk, one and a half to two ounces of butter, one half an egg per day, and a scrap of cheese. These proportions vary slightly, but are substantially consistent with the facts. The present population of the United States is about 57,000,000, and if we reckon two children under ten as one adult, their consuming power is that of 50,000,000 adults. At the ratio of five and six tenths cents' worth to each adult, the annual cost of milk, butter, cheese, and eggs is $1,019,000,000. The annual value of eggs was computed separately for 1873 for the census at $80,000,000. On this basis, the value of eggs is now $92,500,000, and we are also importing largely even from Denmark and Holland:

Dairy and eggs in 1884, as above..............	$1,019,000,000
Domestic eggs separately, in 1884............	92,500,000
Pig-iron in 1884, not over 4,500,000 tons, at not over $20 to consumers........	90,000,000
Wool in 1884, domestic production, estimated, 320,000,000 lbs., at 20c........................	64,000,000
Silver product, valued in gold................	40,000,000

But, in order that the importance of the railway as a prime factor in the mechanism of distribution may be fully comprehended, consideration must be given to the occupations of the people that are to be subsisted. These occupations must, again, be considered with respect to the place in which they are or must be carried on. This classification may be made with very great accuracy from the census of 1880, because the occupations of the people were stated by themselves to the same enumerators that counted the number.

In the census year there were 17,392,099 persons employed in gainful work. Each one of these persons sustained a little less than two others. The value of their product may be fairly estimated at $600 for each person occupied, or at a little less than $200 for each man, woman, and child. In the distribution of this product must be found the source of profits, taxes, and wages. In the following classification, the specific numbers in each separate occupation are sometimes given exactly, sometimes by computing those whose occupations are analogous:

CLASS.	Number in 1,000.	Computed total number.	
1. Mental...	40	696,000	Clergymen, 64,968; lawyers, 64,137; physicians and surgeons, 85,671; teachers and literary, 227,710; journalists, 12,308; engineers, 8,261; musicians, 30,477; officers of corporations, banks, railroads, insurance, and others, 202,468.
2. Ment. and manual.	60	1,044,000	Merchants and tradesmen, 481,450; hotel-keepers, 32,548; clerks, salesmen, commercial travelers, brokers, and all others engaged in the purchase and sale of goods, 521,898.
3. Auto. machinery.	100	1,740,000	Collective factory-work: Textiles, printing, and bleaching, 500,000; metal and machinery, 300.000; clothing, 450,000; boots, shoes, and hats, 210,000; all others, 280,000.
4. Hand and machine tools.	107	1,861,800	Mechanical, not collective: Carpenters, coopers, and other workers in wood, 500,000; blacksmiths, 172,726; painters, 128,556; masons, 102,478; all others, 958,045.
5 Manual..	131	2,279,400	Service: Express, railroad, and telegraph employés (not laborers), 300,000; domestic servants, 1,075,655; laundry, 122,000; waiters, 200,000; draymen, hackmen, etc., 180,000; all others, 891,845.
6. Horse and hand tools.	250	4,350,000	Farmers, herdsmen, stock-breeders, and the like.
7. Manual, etc.	312	5,420,899	Laborers on farms, 3,323,876; laborers not specified, probably in part on farms, 1,857,023; miners, 240,000.
	1,000	17,392,899	

It will be apparent that all the members of Class I that are occupied in mental or administrative work must perform their several functions within the limits of, but must be scattered over all parts of, the United States. The same rule applies to Class II, merchants, tradesmen, and other distributors; to Class IV, persons engaged in mechanical work that is individual rather than collective; to Class V, employés of transportation companies, domestic servants, and the like; and to the whole of Class VII, laborers, except a small portion of those engaged in mining. The product of perhaps one third of those that are engaged in Class III, collective factory-work, and of perhaps 2½ per cent. of the farmers and farm-laborers, being the proportion occupied on sugar, swamp rice, hemp, barley, and flax; and, lastly, of 10 per cent. of the miners, might, perhaps, be imported from foreign countries as a matter of choice. The rest of these occupations must exist of necessity in the country, and even become centered in specific sections of the country itself, according to soil, climate, and condition. A year's supply of meat and bread can be moved a thousand miles by railroad at the cost of $1.25. It may be estimated that where there were 17,392,099 persons engaged in all kinds of gainful occupation in the census year, there are now 20,000,000 thus employed, of whom 19,000,000 must do their work within the limits of the country, distributed according to the conditions of soil, climate, and other elements; while in respect to 1,000,000, a choice might be exercised as to the place of the work; in other words, it is work that might be done in this or in some other country, as might be most advantageous. On the other hand, out of the products of agriculture, valued at the farms by Mr. Dodge at $3,726,331,422 (to which must be added, for transportation to the place of wholesale distribution or export, the sum of $200,000,000, making a total of $3,926,331,422), the proportion exported was valued at $685,961,091, or 17½ per cent. of the whole. If we apply this percentage to the number of farmers and farm-laborers, we find that, in the census year, there were 1,350,000 whose best market was outside the United States. More than two thirds of this was food that could not have been sold for export but for the service of the railroad in moving it to the seaboard at constantly decreasing rates.

The following quantity of provisions, representing thirteen tons, were worth in gold the sums of money set opposite the respective dates, from 1869 to 1883 inclusive, during which period (1884 not yet given) the average charge on all merchandise moved over the New York Central and Hudson River Railroad was reduced in the manner shown in the subsequent table:

Prices in gold in the New York market of 20 barrels flour, extra State; 100 bushels wheat, Milwaukee Club; 100 bushels corn, Western mixed; 100 bushels oats, 10 barrels mess-pork, 10 barrels mess-beef, 100 pounds lard, 100 pounds State dairy butter, 100 pounds medium washed clothing-wool, compared with charge reduced to gold of moving the above-named quantity, equal to 13 tons, 1,000 miles, at the average rates charged by New York Central and Hudson River Railroad, 1869 to 1883 inclusive:

YEAR.	Cost in gold.	Decrease in the charge per ton per mile.	Dollars, thirteen tons, 1,000 miles.	Per cent. of freight charge to value in New York.
		Cents.		
1869....	$662 68	1 78	$231 40	36·61
1870 ...	775 02	1·64	213 20	27·47
1871 ...	735 33	1·40	182 00	24·76
1872....	675 92	1·41	183 30	27·16
1873....	662 50	1·38	179 40	27·05
1874 ...	748 54	1·31	170 30	22·73
1875....	696 40	1·11	144 30	20·73
1876....	651 74	·94	122 20	18·74
1877....	751 95	·97	126 10	16·76
1878....	569 81	·92	119 60	20·98
1879....	568 34	·79	102 70	18·08
1880....	631 82	·88	114 40	18·12
1881....	703 10	·78	107 40	15·27
1882 ...	776 18	·73	94 90	12·22
1883....	662 11	·91	118 30	17·87
1884. ..	621 75			

The rates for 1884 are not yet given, but are estimated at less than 1883, and perhaps as low as in 1882. Although the average rates on all merchandise are higher than the specific rates upon grain and provisions, yet these are the rates on the line that is worked at the lowest rates; and those average rates, without question, accord with the changes made on other lines over which provisions are moved to Chicago, Cincinnati, and other Western centers. They indicate, in the surest way, the vast benefit that the farmers have gained from the constant improvement of the railway service by consolidation and by the reduction of the charges to the lowest point consistent with any effective service; which point was reached on the main through lines in 1879–'80, so far as Western traffic is concerned.

Having thus considered the details of the occupations of the people of this country, we may now turn to the census classification, which is of a broader and more general kind, and, by applying this classification to sections, we may deduce some valuable inferences with respect to the future of the railway service.

The census classification of the employment of all persons engaged in every kind of gainful occupation was as follows:

		Per cent.
Agriculture	7,670,493 =	44
Professional and personal service	4,074,238 =	23·5
Trade and transportation	1,810,256 =	10·5
Manufacturing—mechanical arts and mining	3,837,112 =	22
Total	17,392,099 =	100

Classifying by sections, we get the following results:

Proportion of the persons in each 1,000 of all that were occupied in any kind of gainful employment in the census year. Total number, 17,392,099. I. Farmers and farm-laborers. II. Professional and personal service. III. Trade and transportation. IV. Manufacturing, mechanical, and mining.

	I. Farmers.	II. Professional.	III. Trades.	IV. Mechanical.
Whole country....	441	234	104	221
Southern States...	646	196	63	95
N. England States.	172	223	154	451
Middle States.....	197	293	157	353
Western States and Territories	442	242	107	209

Referring to the previous table, in which the freight and passengers are sorted substantially on the same plan, we observe that the greatest number of passengers are moved in New England, where the manufacturing and mechanic arts have been developed in the greatest measure. The greatest number of tons of freight are moved on the railroads of the Middle States, through which food is carried to the East or for export, and from which fuel is distributed; while the least quantity of merchandise is moved over the Southern roads in the States in which cotton, hemp, and tobacco are the chief products of agriculture; these products being of high value but of light weight, and in States where the diversified occupations that are born only of liberty are now being rapidly established. While the traffic is small, as it is in the South and in the far West, the rates of charge must be relatively high, or else the railways will not be built, or, if built, may cease to be operated. The present contest for the regulation of railway traffic by national statutes covering or entering into the minute details of the work, presents another of the many examples of futile attempts to alter the nature of things. It seems to be another effort to overcome what are considered hardships, which can only be remedied by the slow progress of events, and not by the enactment of what may be called meddlesome statutes. Low rates of traffic can not be enforced unless the volume of business is large enough to sustain the roads at such low rates.

Thus far, attention has been directed to what has been accomplished. We have spent not less than $6,000,000,000 in the construction and equipment of 125,000 miles of railway; but such figures only confuse the mind—they must be reduced to units in order to be comprehended. In another part of this article, each mile of railway is estimated as representing the continuous work of 560 men for one year, but this is the representation of only a mile of single track at a computed cost of less than $25,000. A large proportion of our lines are double-tracked and heavily equipped, and cost the labor of a much greater number of men in the past than they would now. If they have cost only $5,000,000,000, which would be a little over 60 per cent. of the outstanding securities, they represent the labor of 10,000,000 men for one year, or of 500,000 men working continuously from the end of the civil war to nearly the present time. In this view of the matter, the work accomplished has cost us but little, if we compare it with what has been wasted in Europe in war or in preparation for war. Had not the South been subdued by the principle of liberty upon which this nation was founded by the common ancestors of the people, the Potomac might have become the Rhine upon whose borders two hostile camps would have been arrayed, waiting and watching while consuming the substance of both sections, keeping them poor and wretched like the peasantry of France, Germany, Italy, and Austria, whose standing armies in proportion to their population are about the same as an army of 500,000 men would have been for the people of this country had the two sections been separated from each other. In place of this burden, our peaceful army of 500,000 stalwart men have leveled the mountains, filled up the valleys, opened the mines, and laid down the iron bands over which the abundance that comes from peace, order, and industry is carried to the remotest point of our country, rendering each and all interdependent under the beneficent law of mutual interest and of mutual service, which forever forbids war and makes armies useless, except as a border police. Not only do we feed and clothe ourselves with all the necessaries of life, but with the excess of grain that we can not consume, and the excess of cotton that we can not spin and wear, we buy all our tea, coffee, sugar, spices, and fruits in such measure that what are the luxuries of many lands are but the common comforts of our own. Yet what we have accomplished is but a tithe of what remains to be done. The following table shows the relative portions of our soil that are now occupied by our grain and cotton crops, or that would suffice for the production of meat, dairy products, and wool, if methods were adopted in their production of which the success is already absolutely assured. As we stand at the parting of the ways, when the adjustment of the prices of the necessaries of life upon a lower plane has been made, and when constructive enterprise is about to be resumed under such conditions that the working people of this land will be better off than ever before, perhaps we may summon our whole population to judgment. They now number, or soon will number, 58,000,000, and they could all stand at ease on the ten square miles of waste land that are within the limits of the city of Boston.

The area of the United States, omitting Alaska, is substantially 3,000,000 square miles. In the following table will be found a comparison of the areas actually under cultivation in grain and cotton (given in round figures, disregarding fractions), and the areas that would suffice for meat, dairy products, and wool, if special modes of agriculture now in use should become general:

	Square miles.	
Total area......	3,000,000	
Indian corn.....	111,500	At 25 bushels to an acre, will produce over 1,800,000,000 bushels, about the crop of 1884. At five pounds of corn to one pound of pork, one half the crop would give 86,000,000 casks of pork.
Dairy and eggs..	60,000	At the ratio of one cow to two acres, would sustain 19,000,000 cows. Number in 1880, 12,500,000. By means of ensilage and cotton-seed meal, two cows can be sustained to one acre of corn-stalks.
Wheat.........	60,000	At only 18 bushels to an acre, will yield over 500,000,000 bushels.
Mutton and wool	40,000	At four sheep to an acre, 102,400,000 sheep. At four pounds per sheep, 409,600,000 pounds.
Beef...........	60,000	At 500 pounds of meat per acre, one pound of beef per day for 58,000,000 people. By means of ensilage and meal from the corn-area, this can be done, whether at a profit or not remains to be determined.
Cotton.........	20,000	At half a bale to an acre, 6,400,000 bales.
Total assigned.	352,500	

Corn, wheat, and cotton, actual, on our present wasteful modes of agriculture. Dairy products, beef, mutton, and wool, possible, but not probable, for many years.

The area assigned to beef, and to mutton and wool, is potential rather than probable, perhaps for a century, or until the pressure of a dense population has rendered economy of land profitable. At present, the only use that we can make of a large section of our country is to devote it to grazing, without regard to area.

In conclusion, we may ask, What will be an adequate mileage of the railways of the United States in the first decade of the next century, or twenty years hence, when our population will number about 100,000,000, and when 500,000 square miles of our area of 3,000,000 may yield 50 per cent. more product to each square mile than the present average, or than the moderate estimates that have been adopted in the construction of the last table?

READE, CHARLES, an English novelist, born at Ipsden, Oxfordshire, June 8, 1814; died in London, April 11, 1884. He was descended from an ancient family, the seventh and youngest son of a country squire, John Reade, of Ipsden House. He was educated at Magdalen College, Oxford, taking his bachelor's degree with a third class in classics in 1835, and was elected to a Vinerian scholarship and a fellowship in his college in 1842. The university conferred upon him subsequently the degree of D. C. L. He was called to the bar at Lincoln's Inn in 1843, but devoted his attention to literature, writing extensively but anonymously for London journals and magazines. In 1852 was published under his own name the novel of "Peg Woffington," which at once made his reputation. About this time he wrote in collaboration with Tom Taylor the play of "Masks and Faces," the plot of which is nearly the same. The novel went through several editions, and was republished in America. The year following he published "Christie Johnstone," a still more popular story. These works were marked in the composition of the plot and the disposal of incidents by a dramatic quality such as characterizes the works of French authors who, like Charles Reade, combine the arts of the playwright and the novelist. He began writing novels and plays about the same time. "Gold," a five-act drama, was produced in 1850; in 1854, in conjunction with Tom Taylor, a volume of plays containing "Masks and Faces," "Two Loves and a Life," and "The King's Rival." His first two novels were followed in 1855 by "Clouds and Sunshine" and "Art: a Dramatic Tale," both of which found many readers. The dramatic qualities of his style were more predominant in his maturer novels, symmetrical in plot, the action lively, the characters strongly marked, the diction pointed and sententious. His next work, "It's Never too Late to Mend" (1856), established his reputation as a master of fiction. In this he first displayed a peculiarity that mars several of his finest works, that of importing into his novels, otherwise worked out with the highest art, a heterogeneous picture of some social wrong against which he wishes to inveigh as a moralist. The telling effect of these vivid descriptions led him to repeat the fault for the sake of the reformatory results, which he could achieve better through his novels than if he chose another mode of conveyance for his lessons. He formed the habit of collecting newspaper items, reports of tribunals, and other exact data, in order to derive his plots and incidents and characters from real life. Besides drawing his materials from newspapers, bluebooks, books of travel, etc., he sometimes took plots and situations that had been used by other writers, and in several instances purchased the productions of other writers to work over. These practices subjected him to frequent charges of plagiarism, and involved him in many angry controversies. In this way he was enabled to describe with scientific correctness the circumstances of all phases of life, and to introduce effectively many realistic incidents and details; but his characters are too

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typical and poetically true to nature to be realistic, while the occurrences from actual life that he sometimes worked into the mechanism of his stories seem unnatural. The third part of "It's Never too Late to Mend" is taken up with a graphic depiction of the cruelties and horrors of prison discipline. The novel went through many editions on both sides of the Atlantic, though critics assailed him not only for his breach of the canons of art, but for presenting an overcharged picture of this evil. In 1859 he published a statement of "Proofs drawn from Prison Revelations." In "Hard Cash" he directed an attack against private lunatic asylums; and in "Put Yourself in his Place" (1870) he held up to execration the violent practices of the early trade-unions in Sheffield. "A Woman-Hater," published in 1867, dealt with the woman-suffrage movement. His only historical novel, "The Cloister and the Hearth" (1861), is one of his masterpieces, as is also "Love me Little, Love me Long" (1859). Another of his most powerful novels is "Griffith Gaunt" (1866). "The Wandering Heir" (1872), "A Terrible Temptation" (1871), "White Lies" (1857), and "The Course of True Love" (1857), also achieved success, although some of them were sharply criticised. In 1858 he published a short, graphic narrative entitled the "Autobiography of a Thief." Charles Reade was easily provoked into a controversy, and did not hesitate to defend with his pen the artistic value of his work. A collection of controversial writings was published in 1882 as "Readiana." He was a man of strong impulse and firm convictions, which he asserted in a determined manner. He was a resolute champion of the rights of authors. In 1862 he won a suit against a London manager named Conquest who had put upon the stage a version of the plot in "It's Never too Late to Mend," which he afterward dramatized himself. He also took a vigorous stand against violations of literary property by American publishers. His novel of "Foul Play" attacks the abuses that Plimsoll and Chamberlain have sought to remedy by legislation. It was dramatized as "A Scuttled Ship," a successful play in which he had the co-operation of Dion Boucicault. A drama founded on Tennyson's poem of "Dora" was brought out in 1867. His last dramatic adaptation was "Drink," founded on Zola's novel "L'Assommoir." One of his latest stories, "A Simpleton" (1874). is a powerful work, though overloaded with realistic episodes. His last stories were "The Picture," published in 1883, and "A Perilous Secret," published just before his death. Among his minor stories are "Propria quæ Maribus" and "The Box Tunnel" (1857), "Jack of All Trades" (1858), "A Good Fight, and other Tales" (1859), "The Eighth Commandment" (1860), "A Hero and a Martyr" (1875), "Multum in Parvo," "The Jilt," "Good Stories," and "The Coming Man."

Mr. Reade never married, but for many years Mrs. Seymour, the actress, lived in his house and sat at the head of his table, until her death, a few years before his own. If he had married, he would have been obliged to relinquish his fellowship at Oxford, which gave him an income of a thousand dollars or more per annum.

REFORMED CHURCHES. I. Reformed Church in America.—The following is a summary of the statistics of the Reformed Church in America, as they are given in the "Acts and Proceedings" of the General Synod for 1884:

Number of classes, 33; of churches, 520; of ministers, 549; of communicants, 81,880; number of additions during the year on confession, 4,388; of baptisms, 1,084 of adults and 4,897 of infants; number of baptized non-communicants, 30,456. Amount of contributions: for benevolent purposes, $220,383; for congregational purposes, $938,190. Seven hundred and sixteen Sunday-schools were reported to the General Synod, with 90,308 members.

The Board of Direction reported to the General Synod that the amount of assets and cash in the hands of the treasurer on account of the educational enterprises and benevolent funds of the church was $717,160.

The amount of the widows' fund, which was included in the above statement, was $63,520. The gifts from churches and individuals during the year had been $2,122, and the annual payments from ministers $1,285. Annuitants had been paid from the income the aggregate sum of $3,769. The amount of the disabled ministers' fund invested was $53,267; from its income had been paid during the year, $5,220. The education fund (endowed scholarships, etc.) amounted to $118,110; the parochial school fund, to $11,307; and the permanent seminary fund, to $183,507.

The receipts of the Board of Publication for the year had been $22,141. The assets of the Publication-House were returned at $14,977, with no liabilities. Including regular annual documents, 12 publications had been issued.

The receipts of the Board of Education had been $18,235. The board returned 44 students on its roll of beneficiaries.

The receipts of the Board of Domestic Missions had been $44,795, besides which the treasurer returned $30,088 as received on account of the church-building fund. The board had aided 95 missions and churches, of which 55, served by 51 missionaries, were in the East, and 40, with 35 missionaries, were in the West and South. Connected with these churches were 6,350 members, 685 of whom had been received on confession; 4,658 families; and 97 Sunday-schools, with an average attendance of 8,674 scholars. Seven new churches had been organized, and six churches had become self-sustaining. The mission churches had contributed $889 to domestic missions, and $3,930 to other objects.

The Board of Foreign Missions had received $92,872, of which $12,193 had been contributed through the Woman's Board. The missions which are in China, India (classis of Arcot), and Japan, returned in all, 11 stations, 132 out-stations, 20 missionaries, 24 assistant missionaries, 18 native ministers; 159 catechists or preachers, assistant catechists, readers, schoolmasters, schoolmistresses, and Biblewomen; 39 churches, with 2,952 communicants; 6 academies, with 209 scholars; 89 day-schools, with 1,989 scholars; and 20 theological students. The contributions of the native churches amounted to $3,879.

General Synod.—The General Synod of the Reformed Church in America met at Grand Rapids, Mich., June 4. The Rev. David Cole was chosen president. The Committee on Overtures, in view of the request of six classes, recommended the submission to the classes of constitutional amendments intended to give more definite significance to the expression, "All the articles of the Christian religion," as used in the baptismal forms. In answer to requests from classes that they be allowed to examine young men for licensure, where it had not been convenient for them to attend the seminaries of the Reformed Church, upon certificates of other seminaries than those of the Synod, the committee reported that the General Synod had no right to grant such requests, as it would be contrary to the constitution of the Church. But dispensations in particular cases were granted by special votes of the General Synod. The Synod of the Holland Christian Reformed Church in America was in session at Grand Rapids at the same time with the General Synod, and an exchange of visits by delegations was made between the two bodies. The wish was also expressed in both bodies that, as they had the same faith and held to the same fundamental principles, they might eventually become one. Arrangements were made for the publication of a conspectus of the legislation of the Reformed Church in Holland and America during the last three hundred years, which has been prepared by the Rev. E. T. Corwin, D. D.

II. Reformed Church in the United States.—The following triennial summary of the statistics of the Church was presented to the General Synod at its meeting in May:

Number of classes, 52; of ministers, 783; of congregations, 1,465; of members, 169,530; of unconfirmed members, 108,112; of infant baptisms, 38,737; of adult baptisms, 3,088; of confirmations, 27,223; of communicants, 136,897; of Sunday-schools, 1,378; of Sunday-school scholars, 114,720; of students for the ministry, 145; amount of contributions: benevolent, $327,899; congregational, $2,193,018.

The Board of Foreign Missions reported to the General Synod that its receipts for three years had been $20,641, and its expenditures $17,361. Besides the balance of $3,280 on the general account, the board had on hand legacies to the amount of $1,709, bearing interest. The mission is in Japan.

The Board of Home Missions had raised and expended in support of the missions under its charge, during three years, $77,989. The present number of the missions was 142. The board had not been able, for want of funds, to appoint a missionary for immigrants at the port of New York.

General Synod.—The General Synod of the Reformed Church in the United States met in Baltimore, May 7. The Rev. Dr. B. Bausman was chosen president. The most important action of the Synod was that taken upon the report of the commission which had been appointed at the previous meeting of the body, in 1881, to prepare a Liturgy and Directory of Worship. The commission was appointed in connection with the completion of the "Peace Measures," which were enacted at the same time for reconciling the two divergent schools of thought within the Church, and putting them upon a common basis of action; and the resolution appointing it called for "the preparation of a Liturgy or Directory of Worship suitable to the demands of the case and to the wants of the Church." The report of the commission was adopted, and the directory it had prepared was approved, by a unanimous vote. The directory will still have to be submitted to the classes for their action, after which it will come before the General Synod again for adoption. The third Sunday of January in each year was fixed upon as the day to be observed in all the churches as a "reformation festival." This was selected as the most suitable time, because it comes near the 19th of the month—the day on which, in 1563, the Heidelberg Catechism was first published. The text of the tercentenary edition was designated as the standard to which the phraseology and punctuation in the German Liturgy and other books containing the Creed, the Lord's Prayer, and the Ten Commandments, should be edited to conform. The Rev. J. H. Dubbs, who had been appointed by the General Synod in 1881 to "prepare a manual of the origin, history, doctrines, government, and customs of the Reformed Church in the United States," reported progress, and was requested to complete it.

III. Reformed Churches in Germany.—A meeting was held in Marburg, Germany, in August, to form a confederation of the various Reformed Churches of the German Empire. These churches, having in all a million and a half of adherents gathered in some eight hundred congregations, were divided in organization by the old state lines, and had no bond of union except the Heidelberg Catechism. An organization was effected, the basis and object of which are defined in the first two articles of the constitution adopted, as follow:

"1. This Bund grounds itself on the Word of God, of the Old and New Testament, and acknowledges the confessions of the Reformed Church of Germany, especially the Heidelberg Catechism, as right and pure declarations of its teachings. 2. This Bund aims at the preservation and care of the interests (Güter) of the Reformed Church of Germany, in teaching, worship, and discipline in every possible way, in accordance with the order of the several confessions and churches to which the members of this Alliance belong. It abstains from any further interference in the affairs of any of the churches."

Further objects of the Bund were stated to be the upbuilding of the Reformed churches of Germany, the spread of Reformed literature, the strengthening of weak churches, and other ends harmonizing with these. The meetings of the Bund are to be held every two years. Ober Consistorialrath Brandes, of Göttingen, was chosen president, and the Rev. Dr. Zahn, of Stuttgart, secretary of the organization.

REFORM IN THE CIVIL SERVICE. The movement for a reform in the methods of selecting the civil servants of the United States has closely followed a similar movement in the mother-country.

In Great Britain.—The reform in Great Britain began in 1853, with the appointment of Sir Stafford Northcote and Charles E. Trevelyan as a commission to inquire into the organization of the permanent civil service. The report of this commission showed an almost incredible degree of ignorance and incapacity among the civil servants. In one important respect the evil to be dealt with was the opposite of that from which the American civil service has suffered. Instead of there being a continual overturning of the public service, the complaint was that the incompetents thrust into it could not be got rid of. Once a man was appointed, the public had him for life. As a remedy, the commission recommended open, competing literary examinations. Owing to a change of ministry, the Government took no direct action on this report, but in May, 1855, an Order in Council was passed, appointing a Civil-Service Commission to conduct examinations. The examinations were not required to be competitive, but the systematic methods introduced by the commission had a good effect, and a system of limited competition soon sprang up. The nomination of candidates for examination was still a matter of patronage. In 1870 a great step was taken. On June 4 of that year another Order in Council was issued, directing that, with certain exceptions, all appointments in any department should be made by means of open, competitive examinations. The order was at once put in force, and the system that it established has not only greatly increased the efficiency and character of the civil service, but it has destroyed the system of patronage that was formerly supreme. Speaking of the new order of things in a public address in 1871, Prime-Minister Gladstone said: "As to the clerkships in my own office—the treasury—every one of you has just as much power over their disposal as I have. . . . We have now been enabled to remove the barriers of nomination, patronage, jobbing, favoritism in whatever form."

The competitive system was applied to the East India civil service in 1855, under a plan drawn up by a committee of which Lord Macaulay was chairman. The competitive system now applies to almost the entire civil service of Great Britain. The chief exceptions are the Foreign Office and the diplomatic service.

A civil-service act similar to that of the United States was passed in Canada in 1882, and during 1883, 1,086 candidates for the public service were examined under it. The system is declared to have had a beneficial effect.

In the United States.—The first provision requiring some evidence of qualification in the civil servants of the United States is found in the act of Congress of 1853, which provided that no person should be appointed to any of the four grades of clerkships in the departments in Washington until he had been examined and found qualified by a board of examiners, one of whom should be the head of the office to which he was to be appointed. The examination provided for was only a pass-examination. This too often became a mere form, and sometimes consisted of asking the candidate what his name was, or what he had had for breakfast! Frequently, even the pretense of an examination was lacking, the formal certificate of qualification being signed without the candidate's even being seen by any other member of the board than the head of the office. The pass-examinations in the Treasury Department were, however, very thoroughly conducted under Secretary Boutwell, who entered office in 1869, and the experience gained in applying them was afterward of great value in establishing the competitive examinations under the civil-service regulations.

The first popular demand for a reform in the methods of appointment to the civil service was heard soon after the close of the civil war. The immense increase in the number of civil servants during the war period had been made under the system of congressional patronage, and the necessary result was wide-spread inefficiency and extravagance. The agitation of the question of reform bore fruit in the appointment by the two houses of Congress, in July, 1866, of a joint select committee on retrenchment, who were directed to inquire whether the public expenditures could be reduced by lopping off useless officers or cutting down excessive salaries, and to consider the expediency of providing "for the selection of subordinate officers after due examination by proper boards; their continuance in office during specified terms . . .; and for withdrawing the public service from being used as an instrument of political and party patronage." This resolution, which covers the whole field of civil-service reform, was introduced by Thomas A. Jenckes, a representative from Rhode Island. As a member of the retrenchment committee Mr. Jenckes made two reports (in 1867 and in

1868), going over the whole subject, and pointing out the evils of the old system. The testimony of public officers was pretty nearly unanimous that the appointees recommended by Congressmen were the least diligent and efficient; and that an equal amount of work could be performed by a less number of persons, and that the efficiency of the service would be increased if all new appointments were to be made to the lowest grade only, out of candidates that should pass a rigid test examination, and if candidates for promotion should pass a similar test examination. As a remedy for the flagrant evils of patronage, the committee presented a bill providing for a department of the civil service, of which the Vice-President of the United States should be the head, and for a board of Civil-Service Commissioners, of which the same officer should be chairman, which should conduct the examinations under the act and determine any case of alleged misconduct or inefficiency in any public officer. It also broadly provided that all appointments of all civil officers, except postmasters and officers confirmed by the Senate, should be made from those standing highest in competitive examinations, open to all citizens of the United States of the requisite age, health, and character. But the warnings and recommendations of the committee passed unheeded.

Nothing further was done till 1871, when the growing evils of patronage again aroused the public mind. In March of that year an amendment was tacked on to an appropriation bill in the Senate, authorizing the President "to prescribe such rules and regulations for the admission of persons into the civil service of the United States as will best promote the efficiency thereof, and ascertain the fitness of each candidate, in respect to age, health, character, knowledge, and ability for the branch of the service into which he seeks to enter." It also authorized the President to employ suitable persons to conduct these inquiries. These provisions were adopted on the positive recommendation of President Grant. Under this act a Civil-Service Commission was appointed, of which George William Curtis was chairman.

An important constitutional question arose at the very outset—whether the President might regulate the exercise of the appointing power of the heads of departments, so as to restrict appointments to a class of persons whose qualifications and fitness should have been determined by an examination instituted independent of the appointing power. The Attorney-General held that, while the head of a department could not be required to appoint the person standing highest in a competitive examination, yet the selection might be limited to a class, though he could not say how small the class might be made. The commission fixed upon three persons as a sufficiently large class, and required in their rules that that number of names should be presented for each place.

Dec. 18, 1871, the commission submitted a report, accompanied by a set of rules for the improvement of the civil service. These rules provided that all vacancies in the lowest grade should be filled by the open competitive examination of applicants, conducted by a board of three examiners for each department; that all vacancies in upper grades should be filled by competition among those in the lower grades; that three persons should be certified for each vacancy; and that all original appointments should be made for a probationary period of six months. Further regulations, promulgated in April, 1872, prescribed the mode of selecting postmasters, the chief officers of the customs, consuls, and similar officers.

The new system was put in force in the departments in Washington in June, 1872, and in August of the same year it was extended to the Custom-House and Sub-Treasury in the city of New York. In the spring of 1873 Mr. Curtis resigned the chairmanship of the commission, and was succeeded by Dorman B. Eaton. An additional set of regulations was promulgated by President Grant in August. These regulations provided for the division of the country into five civil-service districts, in each of which examinations were to be held from time to time by a chief examiner, to be employed or designated by the President. Edward O. Graves was designated for this service, and a series of examinations under the new regulations was held in the various districts in the following winter. The chief examiner reported in January, 1874, that, in all, 184 examinations had been held for the departmental service, of which 62 were for admission to the service, and 122 for promotion; and that 3,817 candidates had been examined, and 710 vacancies filled, of which 282 were in the lowest grades and 428 in upper grades, ranging in importance from woman-clerkships at $900 a year to the deputy-comptrollership of the currency. In the following April the commission submitted to the President an exhaustive report, accompanied by statements from the heads of the various offices for which examinations had been held. The testimony was overwhelming in favor of the new system, especially as applied to original appointments. The heads of the executive departments agreed in saying that the new system had "given persons of superior capacity and character to the service of the Government, and had excluded unworthy applicants"; had "developed more energy in the discharge of duty," and had "diminished the solicitation and pressure for office," as well as "the intrigue and pressure for the removal of worthy persons." Notwithstanding this ample demonstration of the merits of the new system, Congress refused the modest appropriation that the President had asked for the work of the commission for the next fiscal year. The chief examiner ceased his functions June 30, 1874, and no district examinations were held after that date. But the system was extended to the Custom-House and Sub-Treasury in Boston by a presidential order in the following August. The rules continued to be applied with more or less strictness in the Treasury offices in New York and the Treasury Department in Washington until March, 1875, when President Grant orally directed Secretary Bristow to discontinue them. The several boards of examiners were abolished, and the examinations under the civil-service rules discontinued. The President declared that this action was caused solely by the opposition of Congress, as shown by its refusal of an appropriation. Dorman B. Eaton, however, continued to be recognized as chairman of the Civil-Service Commission till the establishment of the new system in 1883. In this capacity he made several admirable reports, which did much to enlighten the public mind on the history, methods, and purposes of the reform movement. The chief of these were an elaborate historical review of "Civil Service in Great Britain" (1879), based on the author's personal examination of the British civil service; and "The 'Spoils' System and Civil-Service Reform in the New York City Post-Office and Custom-House" (1881).

The views on civil-service reform that President Hayes had expressed in his letter of acceptance and in his inaugural address gave rise to the hope that the discarded experiment would be revived under his administration; but this hope was not fully realized. Secretary Schurz re-established the civil-service rules in the Interior Department, and enforced them thoroughly, but the example was not followed by the other departments, and the enforcement of the rules in that one department ceased on Mr. Schurz's retirement from it.

On March 6, 1879, the civil-service rules of 1872 were revived in the Sub Treasury and in the various branches of the Custom-House in New York. April 23, 1879, similar rules were, by the President's direction, transmitted to the other chief custom-houses and post-offices, but they were not systematically or generally enforced. About the same time a similar system of competition for both admission and promotion was applied to the post-office in New York, where a very efficient system of pass-examinations had been in force ever since the appointment of Thomas L. James as postmaster in 1873. These rules were carried out with fidelity and intelligence in both the custom-house and the post-office, until superseded by the more comprehensive system established by the act of 1883.

Some members of President Garfield's Cabinet, with his approval, took steps toward re-establishing the competitive system in their departments; but the terrible tragedy that so soon followed his inauguration put an end to their plans. Meantime, the reform sentiment of the country was taking practical shape in the formation of non-partisan civil-service associations throughout the United States, which made it their duty to distribute documents, to interrogate candidates as to their views of the question, and to discuss measures for carrying the reform into effect. One of the most active was the New York Association, which drew up a bill for the reformation of the national civil service. This was introduced in the Senate in 1880, and again on Dec. 6, 1881, by George H. Pendleton, of Ohio, and became known as the "Pendleton Bill." The Committee on Civil Service and Retrenchment, to which it was committed, twice recommended its passage, but it remained pending in the Senate until the strength of the reform sentiment of the country made itself felt in the elections of 1882. The long-neglected measure was taken up at the next session and carried through both houses by overwhelming majorities. An ineffectual attempt was made by the Civil-Service Committee of the House to supplant it with the "Kasson Bill," providing for a fixed but limited tenure of office. The bill became a law by the President's approval, Jan. 16, 1883. (For the full text of the bill, see "Annual Cyclopædia" for 1883, page 183.) It provides for open competitive examinations for admission to the public service in Washington, and in all custom-houses and post-offices where the official force is as many as fifty; for the apportionment of the appointments in the departments in Washington among the States and Territories in proportion to their population, and for the appointment of a Civil-Service Commission of three members, not more than two of whom shall be adherents of the same political party, and other officers, to put these provisions into execution. It also forbids assessments on public employés for political purposes by any one in the service of the United States, or in any public building, and prohibits Congressmen from making recommendations for offices to be filled under the act, except as to the character or residence.

Dorman B. Eaton, of New York; John M. Gregory, of Illinois; and Leroy D. Thoman, of Ohio, were appointed members of the commission, and Charles Lyman, chief clerk of the office of the Treasurer of the United States, Chief Examiner. A set of rules and regulations was approved by the President, and went into force July 16, 1883, six months after the passage of the act. (See "Annual Cyclopædia" for 1883, page 683.) They apply to all the places in those branches of the public service covered by the law, above the laborers, watchmen, and messengers, on the one hand, and below the officers confirmed by the Senate on the other, with certain exceptions set forth in rule 19.

The rules provide for admission to the clerical service in the departments in Washington, and in the custom-houses and post-offices within the law, only through open competitive examinations on the elementary branches of an English education. The general examination for admission embraces orthography, penmanship, copying, fundamental rules of arithmetic, fractions, percentage, interest, discount, elements of book-keeping and accounts, elements of the English language, letter-writing, the proper construction of sentences, and elements of the history, geography, and government of the United States. For places requiring a lower degree of education, a simpler examination is prescribed. Provision is made for examinations in technical subjects for special situations, such as law-clerks, examiners in the Patent and Pension Offices, type-writers, topographers, mechanical draughtsmen, copyists of drawings, proof-readers, scientific employés of the Army Signal-Office, etc. Special examinations for all of these classes of places have already been held, with satisfactory results. Examinations have also been held for porters and carriers in post-offices, and for inspectors, night inspectors, and assistant weighers in custom-houses.

Two reports for the years ending Jan. 16, 1884, and Jan. 16, 1885, show that the new system is in full and successful operation, and has become a permanent part of our administrative machinery. The whole number of persons examined to the latter date was 9,889, and the whole number of appointments made under the rules was 2,322. Of 109 whose probationary appointments in the departmental service had expired, 107 had been reappointed. During the year ending Jan. 16, 1885, 2,276 persons were examined for the departmental service, of whom 1,742 were men and 534 women, and 438 were appointed, of whom 391 were men and 47 women. For the customs service, 838 were examined and 119 appointed, all of whom were men. For the postal service, 3,233 were examined, of whom 2,945 were men and 288 women, and 1,249 were appointed. The examinations extend to about 14,000 places, of which, as originally distributed, 5,650 were in the departmental service at Washington, 2,573 in the customs service, and 5,690 in the postal service. The commission presents extracts from reports made to it by postmasters and the heads of customs offices as to the operation and effect of the rules. These reports are almost unanimously favorable.

During 1884 the rules were extended to the post-offices in Minneapolis, St. Paul, Jersey City, and New Haven (the number of officials in each having been increased to more than 50), and to the Department of Agriculture.

The commission, while recognizing that some rules regulating promotions ought to be promulgated at the earliest practicable moment, has found its work so exacting that it has not been able to take up the subject.

The commission in its last report thus summarizes the positive results:

> That the partisan and proscriptive tests, long enforced at the gates of the departments and great offices, may, without loss of any kind, and with increasing support from the people, be rejected, and that in their place tests of character and capacity, irrespective of political or religious opinions, may be substituted.
>
> That with the growing approval of Congress itself, shown by increased appropriations for the commission, and with great relief and advantage in the departments and offices declared by those who preside over them, the old system of congressional influence and official favor for securing appointments may be arrested if not destroyed.
>
> That a system of open, free, public examinations, under a non-partisan commission, may be successfully conducted for testing the character and capacity needed in the public service, without extending the examination, except for a small number of special places, beyond the subjects which are deemed so essential to success in private business. and for the discharge of the common duties of citizens, that they are required to be taught at the public expense in the common schools throughout the country.

President Arthur, in his last annual message, referring to the first annual report of the commission, said:

> The good results therein foreshadowed have been more than realized. The system has fully answered the expectations of its friends in securing competent and faithful public servants and in protecting the appointing officers of the Government from the pressure of personal importunity and from the labor of examining the claims and pretensions of rival candidates for public employment. The law has had the unqualified support of the President and of the heads of the several departments, and the members of the commission have performed their duties with zeal and fidelity.

Two bills for the repeal of the civil-service act were introduced into the House during the last Congress, and referred to the Select Committee on Reform in the Civil Service. The committee unanimously reported against the bills, and heartily commended the Civil-Service Commission, declaring that they were "entirely satisfied" with its "thorough, conscientious, and non-partisan work."

In the State of New York.—The act to regulate and improve the civil service of the State of New York, passed May 4, 1883 (see "Annual Cyclopædia" for 1883, p. 566), conforms very closely to the national law. It also authorizes the adoption of regulations for admission to the civil service of cities having a population of 50,000 or more. Only seven cities were subject to these provisions under the original act, and in these the mayor was given a very limited authority, the exercise of which was entirely optional. Similar authority was given to various heads of departments. The commission called attention to the obvious imperfection and incongruity of this system in its first report. Two acts were accordingly passed, on May 24 and 29, 1884, making the system mandatory in all the cities of the State, and vesting in the mayors sole authority to establish regulations for every department of municipal government, except the educational. The commission, the members of which are John Jay, Augustus Schoonmaker, and Henry A. Richmond, with Silas W. Burt as chief examiner, has made two reports, Jan. 28, 1884, and Jan. 26, 1885. The estimated number of persons subject to the civil-service regulations to be made or approved by the commission is 18,828, of whom 8,600 are in the service of the State, 5,540 in the service of the city of New York, 1,418 in the service of the city of Brooklyn, and 1,765 in the service of other cities. The decisions of the courts that persons employed by the excise boards, the officers and employés of the various courts, and health officers, are officers of the State, brought under the civil-service regulations of the State a large and important class of public officers, who were at first supposed to be in the municipal or other local service, and added largely to the duties of the commission.

One effect of the rules has been to arrest all changes in the State civil service. From an eligible list of candidates examined on April 24, 1884, for the higher grades of clerkships, not a selection has yet been made. Though there has been during the same period an excellent special list for the prison service, no requisition has been made on the commission. Many examinations have been held during the year for professional places.

The duties and responsibilities of the commission were greatly increased by the provision of the amendatory acts requiring their approval of the municipal regulations. All of the cities in the State had complied with the law at the date of the last report except Hudson, Watertown, Oswego, Rome, Elmira, Schenectady, Newburg, and Lockport. The municipal regulations are in harmony with the State rules in all essential matters. As the police and fire departments have no equivalents in the State service, special regulations were prepared for them.

In the City of New York.—The Supervisory Board of Commissioners appointed to assist the Mayor of New York in carrying the civil-service law into effect, consists of Everett P. Wheeler, E. L. Godkin, and E. R. Robinson. In accordance with a request from the State Commission, a report was made to the mayor, Dec. 10, 1884. The earlier regulations of 1883 were replaced on Aug. 29, 1884, by the present regulations, sixty-six in number, under the mandatory provisions of the amended act. The city service is divided into seven schedules, as follow:

A. Deputies authorized to act for their principals, and other persons necessarily occupying a strictly confidential position.

B. Clerks, copyists, recorders, book-keepers, and others rendering clerical service.

C. Policemen of the Police and Park Departments, and the uniformed force of the Fire Department.

D. Persons whose duties require expert knowledge, not included in E.

E. Physicians, chemists, nurses, orderlies, and attendants in city hospitals and asylums.

F. Persons not included in the above, and not laborers.

G. Laborers.

There are three boards of examiners, each composed of two persons: one for positions in Schedules B and C, one for positions in Schedule D, and one for positions in Schedules E and F. There is also the Supervisory Board above mentioned, to aid the mayor in preparing civil-service regulations, to conduct inquiries respecting the examinations, to control the examinations and the general administration of the system, and to decide, subject to the mayor's revision, all questions arising under the regulations. Appointments to positions in Schedule A may be made without examination, but the appointing officer must file with the secretary of the boards, within five days, a notification giving full particulars concerning the appointee. Vacancies in Schedules B, C, D, E, and F, not filled by promotion, are filled by selection from those who have passed highest in open competitive examinations. Applications for positions in Schedules B, D, E, and F, must be accompanied by the affidavit of the applicant, showing that he is eighteen years of age and a citizen of the United States, giving his residence, education, business training, and experience, and saying whether he has ever been in the civil service of the city or in the military or naval service of the United States. It must also be accompanied by the certificate of not less than three or more than five reputable citizens of the city, as to his good moral character, sobriety, industry, and fitness. Candidates for professional, technical, or expert positions must show the training and education they have undergone to qualify them for such situations. The general examination for places in Schedule B embraces handwriting, writing from dictation, spelling, addition, subtraction, multiplication, and division of whole numbers and fractions, condensing a document, and information relating to the city of New York and its government. There are also seven optional subjects, including stenography, type-writing, and book-keeping. All examinations must relate to such matters as will fairly test relative capacity and fitness. No person whose general rating is less than seventy can be placed on the eligible list. For vacancies in places in the above schedules, which it is desired to fill but which can not be filled by promotion, the highest three names on the appropriate eligible list are certified, one of which must be selected.

Applicants for places in Schedule D, in addition to furnishing evidence in regard to age, health, and character, must undergo an examination in reference to the special qualifications, expert or otherwise, required. Applicants for places as nurses, matrons, etc., are examined as to age, health, moral character, sobriety, personal habits, temper and temperament, and ability to read, write legibly, and work simple problems in addition and subtraction. For the posts of physicians, surgeons, etc., the Supervisory Board may institute non-competitive examinations. All appointments except in Schedule G are for a probation of six months, and are published in the "City Record," with the names of the persons that have certified the character of the appointees.

The number of places in the service of the city to be filled by competitive examination is 5,486.

The Supervisory Board was asked by a resolution of the Assembly to report "the requirements established by them as conditions to appointment in the Police and Fire Departments in New York city." From its report, March 3, 1885, it appears that all applications in those departments have to be made upon blanks furnished by the respective departments, and be accompanied by testimonials as to the applicant's good moral character, sobriety, and industry. Proper officers of the department in which appointment is sought are required to make inquiry as to the applicant's general character, habits, and reputation, and especially make direct and explicit inquiry of the signers of his testimonials. The applicant is required to present a statement containing answers to questions concerning his physical qualifications, and submit himself to an examination by the surgeon of the department as to his physical soundness, and is afterward subjected to a competitive examination in strength, endurance, and dexterity. Applicants for places as policemen, in addition to an examination as to their general qualifications, are examined on questions relating to city government, location of streets, public buildings, and railroad depots, and other subjects respecting which strangers in the city are likely to inquire. Candidates for positions as firemen are examined as to the location of streets, and the location and construction of buildings, with especial reference to precautions against fire. No person whose average standing on all the subjects is below seventy is entered on the eligible list. Promotions are made from the next lower grade by competitive examination. All appointments are made for a probationary period of one month, a portion of which must be passed in the school of instruction. The capacity of every member of the uniformed Police and Fire Departments and the Department of Public Parks is to be inquired into once every three years.

In the City of Brooklyn.—Regulations for admission to the civil service of the city of Brooklyn, under the original civil-service act of the State of New York, were prescribed by Mayor Low, Dec. 15, 1883. These were the first municipal regulations adopted in the country, and have served as a model for the other cities of the State. These were replaced, Aug. 15, 1884, by more stringent regulations under the mandatory acts of May, 1884. The public service of the city is classified under three schedules. Schedule A includes all persons that are not employed as laborers or day-workmen, and are not to be appointed upon competitive examination; Schedule B includes all that are to be appointed on competitive examination; Schedule D includes all employed as laborers or day-workmen. The places in Schedule B are, for the purposes of examination, subdivided into classes and grades. The mayor is required to employ eleven suitable persons, citizens of Brooklyn, two of whom shall be physicians, to constitute the Civil-Service Commission of Brooklyn. Not more than six of the commissioners are to be members of the same political party. They are also to act as examiners, and to serve without remuneration. For thirty days after the qualification of any new officer or head of a department, he is at liberty to make dismissals from his clerical force, except where prohibited by law, but all such dismissals must be certified to the commission. Appointments to places in Schedule A may be made without examination, but full particulars concerning all appointees are to be filed with the commission. Every vacancy in Schedule B not filled by promotion must be filled from those who have passed highest in open competitive examinations. Every application must set forth full particulars under oath, and must be accompanied by certificates of not less than three or more than five reputable citizens of Brooklyn, as to the applicant's good moral character, sobriety, industry, and fitness for the service, as well as by the certificate of a practicing physician in good standing that he is physically able. Applicants for the Police Department must have been citizens of the United States and residents of Brooklyn for four years; must be not less than twenty-six or more than thirty years of age, and of the prescribed height, weight, and chest-measurement; and must present satisfactory certificates of character and habits, and be certified by the physicians of the department to be physically sound.

Candidates found to be duly qualified are placed upon the lists in the order of merit as shown by the examination, except that honorably discharged soldiers and sailors of the late war are to be preferred over other candidates of equal standing. All examinations must relate to matters that will fairly test the relative capacity and fitness of the candidates. Vacancies that the welfare of the city requires to be filled, but which can not be filled by promotion, must be reported to the commission, who must certify to the appointing officer the highest three names on the list. The appointment must be made from these three. If special attainments are required, the commission may certify the names of the three persons whose standing is the highest in the special subjects designated, or a special examination may be held. No person is to be certified for appointment more than three times, except upon the request of the appointing officer. When the employment of any person in Schedule B is terminated, and the head of the department certifies that he has satisfactorily performed his duties, his name is returned to its proper place on the list. All appointments except upon the uniformed police and fire forces are made for a probationary term of two months. Firemen are required to serve a probationary period of not more than ten days, without pay, in the repair-shop or with some fire company. All appointments, together with the names of the citizens certifying, are published in the corporation newspapers. Promotions from one grade to another in the following three classes are to be made only upon merit and competitive examination: Class 1. Clerical, book-keeping, and like positions. Class 2. Uniformed police force. Class 3. Uniformed fire force. Promotions from one grade to another in the other classes rest with the appointing officer, who is required to make them upon the basis of merit, though he may, if he please, open the promotion to competitive examination. All of the papers and records of the commission are open to public inspection.

The Civil-Service Commission, of which Ethan Allen Doty is chairman, made its first report Dec. 26, 1884. The first examinations were held Dec. 28, 1883, and Feb. 28, 1884, and were for clerical places in Schedule B. Eleven examinations had been held. They were for clerkships, building inspectors, foremen of street-repairing gangs, plumbing inspectors, draughtsmen, levelers, rodmen, sewer-inspectors, street-inspectors, watchmen, patrolmen, etc. There were 441 competitors, of whom 215 reached the eligible list and 95 had been appointed at the date of the report. In the eleven months ending Dec. 1, 1884, there were 698 appointments and 512 removals and suspensions of laborers or day-workmen.

The examination of March 3, 1884, for building inspectors, the commissioners believe to have been "the first municipal examination for places of this practical kind. . . . The success of this examination led to a competitive examination for street-inspectors, inspectors of plumbing, and foremen of street-repair gangs on April 17, 1884. The examination for foremen of street-repair gangs was deemed an extreme application of the competitive test." The result of the examination was very successful. In an examination for watchmen in July, 1884, the examiners first tried the experiment of rating the testimonials furnished, as well as the physical merits of the candidates. The experiment was highly successful.

The success of the competitive examinations for these and other places requiring special qualifications induced the mayor, upon the recommendation of the commission, to abolish the pass-examinations, and to extend greatly the operation of the competitive test, in framing the regulations under the act of 1884, and was "very largely instrumental in causing the extension of the competitive test in the new regulations for New York city and for the other cities of the State."

The number of salaried places included in Schedule A and exempted from examination is 81. The number of places in Schedule B, filled solely by competitive examination, is 1,418. The entire expenditure upon the civil-service work for the first year was about $1,400.

In the State of Massachusetts.—"An act to improve the civil service of the Commonwealth and the cities thereof" became a law June 3, 1884. Its provisions are in general conformity with those of the national act. The three Civil-Service Commissioners authorized are to hold office for three years, their terms being so arranged that one commissioner goes out of office each year. They are directed to prepare rules for the selection of persons to fill offices in the government of the Commonwealth and of the several cities thereof, which are required to be filled by appointment, and for the selection of persons to be employed as laborers or otherwise. The commissioners are to supervise the administration of the rules. James M. Bugbee, of Boston; Charles Theodore Russell, Jr., of Cambridge; and Charles W. Clifford, of New Bedford, are the Civil-Service Commissioners; Henry Sherwin, of Boston, the Chief Examiner, and Warren P. Dudley, of Cambridge, the Secretary. Civil-service rules prepared by the commissioners were approved by the Governor and Council, Dec. 17, 1884, and went into operation March 30, 1885. The offices and places to be filled under the rules are classified in two divisions, "the official service of the Commonwealth and the several cities thereof," and "the labor service of the city of Boston." Under the first division there are two Schedules: Schedule A, embracing clerks, and Schedule B, embracing policemen of the State and cities, prison-guards, overseers, and watchmen connected with the penal, reformatory, and charitable institutions, members of the fire department of Boston, and certain other places in which physical capacity is of prime importance. The second division includes male day-laborers in the various departments of the city of Boston arranged under one schedule, C.

The general examination for admission to the service in the first division covers about the same ground as that for admission to the Federal service. The examinations may be competitive or non-competitive. They are conducted by examiners, appointed by the commissioners. Those examined are graded according to their excellence. When a vacancy is to be filled, the commissioners present the names of the three most eligible persons, and from these the selection must be made. Preference is given to men that have served in the Army or Navy of the United States in time of war. Every original appointment or employment in the permanent service is made for a probationary period of six months.

Men seeking employment in the labor service of Boston are required to apply for registration at the commissioners' office. Each applicant must produce a certificate signed by two reputable citizens of Boston, of his capacity for labor and his habits as to industry and sobriety, and must give, under oath, his name, residence, citizenship, age, number of persons depending upon him for support, his service in the army or navy, his present employment, and past occupation. When laborers are required, the head of the department makes requisition upon the commissioners, and the registration clerk furnishes double the number of names called for, giving the facts furnished by the register in regard to each. When there are a large number of applicants of the same grade, the selection is by lot.

The Civil-Service Commissioners submitted their first report to the Senate and House of Representatives, Jan. 9, 1885, giving a sketch of the system adopted, together with the regulations and classification. At that time no examinations had been held, but several examinations have since taken place for clerical positions in the Commonwealth service and in the service of the cities of Boston, New Bedford, and Worcester, and for places in the fire service of Boston and in the police service of New Bedford, Worcester, Lowell, Taunton, and Haverhill.

The regulations cover about 440 places in the clerical service of the Commonwealth and cities; about 1,604 in the police and prison service of the Commonwealth and cities; about 658 in the fire service of Boston, and an average of about 1,500 in the labor service of Boston.

The Legislature presented to the Supreme Judicial Court of the State, Feb. 10, 1885, certain questions as to the constitutionality of some of the provisions of the civil-service act and the validity of certain of the civil-service rules. The Court held that the Legislature has the constitutional right to provide for the appointment of a Board of Civil-Service Commissioners, and to delegate to them the power to make rules not inconsistent with existing laws; and that the commissioners can make rules applicable only to the city of Boston. This opinion was signed by all the members of the court, except Justice Colburn, who was prevented by illness from considering the questions. An elaborate argument in support of these conclusions was prepared and published by a committee of the Boston Civil-Service Reform Association.

RESORCIN. See DRUGS, NEW.

RHODE ISLAND. **State Government.**—The following were the State officers during the year: Governor, Augustus O. Bourn, Republican; Lieutenant-Governor, Oscar J. Rathbun; Secretary of State, Joshua M. Addeman; Treasurer, Samuel Clark; Auditor and Insurance Commissioner, Samuel H. Cross; Railroad Commissioner, Henry Staples, succeeded near the close of the year by Walter R. Stiners; Attorney-General, Samuel P. Colt; Commissioner of Public Schools, T. B. Stockwell. Judiciary, Supreme Court: Chief-Justice, Thomas Durfee; Associate Justices, Pardon E. Tillinghast, Charles Matteson, John H. Stiners, and George M. Carpenter.

Finances.—The receipts from all sources from Jan. 1, 1884, to Dec. 31, 1884, were $825,708.66; balance in the treasury Jan. 1, 1884, $365,432.81; payments, $822,930.06; balance in the treasury Jan. 1, 1885, $368,206.41. The receipts were from the following sources:

State and other taxes	$394,238 52
Liquor licenses	90,701 86
Courts and jailers	87,568 77
Shell-fisheries	11,720 00
State institutions, Cranston	50,091 71
School fund	12,191 50
Miscellaneous	229,191 28
Total	$825,708 66

The payments were for the following:

Principal and interest of State debt and sinking fund	$182,860 00
Salaries	68,892 02
Courts and care and support of offenders and dependent persons	232,544 87
Military	27,128 00
Educational purposes	109,200 68
Erection of buildings and purchase of land	45,028 79
All other expenses	157,285 70
Total	$822,930 06

The bonds of the State outstanding Dec. 31, 1884, aggregated $1,372,000. The amount of the sinking fund Jan. 1, 1885, was $371,257.07.

Education.—The following are the school statistics for 1884:

Number of children enumerated, from five to fifteen years	58,858
Increase	459
Number that attended more than twelve weeks	48,898
Increase	2,446
Number that attended less than twelve weeks	2,066
Decrease	175
Number that did not attend any school	12,894
Decrease	1,812
Number of day-schools	850
Average length of schools	9 months 4 days
Number of different pupils enrolled	45,641
Average number belonging	34,122
Average attendance	30,747
Teachers regularly employed	969
Amount paid teachers	$431,958 84
Number of different pupils enrolled in evening-schools	3,614
Average attendance	1,619
Total receipts	$659,585 50
Current expenditures	530,886 27
Permanent expenditures	105,705 50

These figures are practically the first that have been collected since the new compulsory education act went into effect. A comparison of the results here revealed with those of previous years will show that a very decided gain has been made, both in the number enrolled and in the attendance. For the first time since the census was first taken, the increase of attendance at school is greater than the increase in the number of children. One marked feature in the results of this increased attendance has been a decrease in the per-capita cost.

Although the law increasing the annual appropriation for public schools to $120,000, which was passed in the winter of 1884, does not take effect till 1885, the commissioner's returns show that several of the towns have already responded to this call from the State, and have, in advance of the receipt of the increased allowance, raised their own appropriation.

The action of the Assembly in placing a thousand dollars at the disposal of the State Board of Education for the purpose of fostering and promoting mechanical and industrial art through the Rhode Island School of Design has met with good success. A small class of teachers has been formed for the special purpose of training them to give instruction in this branch in the common schools.

The State Normal School had a prosperous year. The attendance was never larger.

School for the Deaf and Dumb.—The last census showed that there were eighty-nine deaf and dumb persons in the State. The number of pupils during the year was thirty.

Charities and Corrections.—The appropriation for this board for 1884 was $100,000, with the sums collected for labor, board of inmates, sales of farm produce, etc., to be added thereto. These receipts amounted to $50,091.71. The total amount available by the board was therefore $150,091.71, all of which was drawn from the treasury. At the beginning of the year there were unpaid bills to the amount of $628.14. The amount of unpaid bills Dec. 31, 1884, was several thousand dollars. There was also appropriated the sum of $20,000 for erecting and furnishing a new building at the Sockanosset School for Boys, and completing the grounds, in addition to which there was an unexpended balance of former appropriations of $318.40. From these appropriations there was drawn the sum of $16,216.29. The total amount appropriated for the buildings and grounds of the boys' and girls' school is $150,000. The new building is nearly ready for occupation. It will accommodate seventy boys. At the May session an appropriation of $40,000 was made for new buildings for the incurable insane. The time named in the contract for the completion of the new buildings is May 1, 1885, but they probably can not be completed by that time.

The number of inmates in each of the departments, Dec. 31, 1884, was as follows: In the State Prison, 119; in Providence County Jail, 213; in Sockanosset School for Boys, 164; in Oaklawn School for Girls, 41; in State Almshouse and House of Correction, 264; in State Almshouse, 206; in State Asylum for the Incurable Insane, 314: total, 1,321. This is an increase in all the institutions of 102 since the beginning of the year.

State Home and School.—At the January session an act was passed establishing a State Home or School for neglected and dependent children, to be under the control of the Board of Education. The Governor was authorized to appoint three commissioners to lease or purchase. By advice of the board, they purchased about forty-five acres of land in the city of Providence. There are a stone dwelling-house, two cottages, and a barn on the premises, all of which will be needed. "With a small appropriation," says the Governor, "to put the buildings in repair and to furnish them, the school can be begun in a very short time on a small scale. It will be necessary, however, to make an appropriation for the erection of additional buildings during the present year."

Divorce.—On this subject, the Governor, in his message to the Legislature of 1885, says:

> Our courts continue to grant divorces to as great an extent as ever. In 1883 there were 257 divorces granted in our State, or one to every 10·16 marriages. During the past ten years there have been 2,884 applications for divorce, of which 2,285 were granted. It can not be possible that our citizens are content to allow this to continue. . . . I trust that our laws will be so amended that, at least, Rhode Island may no longer have the unenviable reputation it now has in respect to divorce, and may no longer be a resort from neighboring States of parties who can not be divorced by the laws of their own State.

Colonial Town Records. — With reference to these, the Governor remarks:

> I desire to call your attention to the necessity of taking some steps to preserve copies of the colonial town records. Some of them are in a good state of preservation, but others do not and have not received proper care. The value of these records is beyond estimation, and should by accident any of them be destroyed, a large amount of valuable historical matter will be forever lost. The expense of causing these to be carefully copied and indexed and deposited in the office of the Secretary of State would be comparatively small.

State Beneficiaries.—The State provides for the education and maintenance of its indigent blind, feeble-minded, and deaf-mutes. The sum allowed for the blind is $300 per annum; for the feeble-minded, $300 per annum; and for the deaf-mutes, $175 per annum. The State beneficiaries at present at the several institutions are as follow: Perkins Institution and Massachusetts Asylum for the Blind, 17; Massachusetts School for the Feeble-minded, 5; American Asylum for the Deaf and Dumb, 4.

Hours of Labor.—The Governor says:

> In my message of last year I called the attention of the Legislature to the fact that, owing to the repeal of section 23 of chapter 169 of the Public Statutes, there was no limitation on the time that children might be employed in manufacturing establishments. The act relative to truant children forbids the employment of any children in such establishments under ten years of age. It also forbids the employment of children under fourteen years of age, unless they shall have attended school twelve weeks in the year preceding such employment. No child under fifteen can be so employed unless he can write legibly his name, age, and residence. It is probable that the repeal of all limitation in the number of hours that children may be employed in manufacturing establishments was unintentional. In other States the experiment has been tried of limiting the hours of labor for women and children to ten hours in any one day, with the most satisfactory results.

Political.—The State election occurred on the 2d of April. The Republicans renominated the sitting officers, who were re-elected. The Democratic nominees were: For Governor, Thomas W. Segar; Lieutenant-Governor, Elisha Mathewson; Secretary of State, Jonathan M. Wheeler; Attorney-General, Francis L. O'Rielly; Treasurer, George T. Leonard. The following was the vote for Governor: Republican, 15,936; Democratic, 9,592; scattering, 18. The Legislature chosen at the same time consists of 29 Republicans and 8 Democrats in the Senate, and 57 Republicans and 15 Democrats in the House. The vote for Presidential

Electors on the 4th of November was as follows: Republican, 19,030; Democratic, 12,391; Greenback, 422; Prohibition, 928. Two Republican Congressmen were elected. On September 2 United States Senator Henry B. Anthony died, and on the 19th of November the Governor appointed William P. Sheffield, Republican, of Newport, to fill the vacancy.

ROMAN CATHOLIC CHURCH. The year 1884 opened with an event that agitated the Roman Catholic Church throughout the world. On January 29 the Supreme Court of Cassation created by the Italian Government decided that a law regarding the property of religious orders and congregations applied to the various departments of the Pontifical Government, commonly called congregations, although they had nothing of a monastic character, nor the slightest resemblance to a religious order. Under this decision, the extensive properties in which the Congregation de Propaganda Fide had invested moneys given to it by individuals for the support of Catholic missions in all parts of the world were ordered to be sold, the proceeds, after large deductions, to be assumed as a debt of the Italian Government to the Congregation de Propaganda, on which the Government was to pay such interest as it saw fit. On this Pope Leo XIII, through Cardinal Simeoni, issued a note, addressed to the Papal representatives at the various courts, in which he said:

> Propaganda is a most important creation of the Papacy, intended to be always at the disposal of that creating power for the accomplishment of the Divine Mission, intrusted to the Holy See, of propagating faith and civilization among all nations. And as regards the manner in which Propaganda has answered this purpose, the annals of missions are ready with their witness.
>
> It is such an institution as this, an institution bearing in its origin, in its Constitution, in its actions, in its patrimony, and in its history, a character so essentially cosmopolitan and universal, that is now to be subjected to the private and particular laws of an isolated government, to the judgment of a local tribunal —a tribunal which immediately after declaring it incapable of possessing legally, proceeds to despoil it of its property. It was not enough to have forced Propaganda to linger during long years, passing from tribunal to tribunal, and bearing the heavy expenses of a difficult lawsuit. It was not enough to force it to the payment of enormous taxes, which absorbed the fifth part of its yearly revenues, thus snatched from their destination of beneficence. No regard was paid to the good offices of persons worthy of consideration; all efforts to make the legal position more tolerable went for nothing. No attention whatever was paid to the irrefutable arguments which had won from previous tribunals a favorable decision, and one approved besides by all upright minds. The very will of the august dead was slighted over the tomb. It might almost be said that some power had decreed the spoliation of Propaganda precisely because it is the most splendid expression and representative of the Papacy, and that before the decree of this strange power all reasons of right and arguments of justice were vain.
>
> By rendering Propaganda incapable of holding its own possessions, the state reduces it to a position below that of any class of citizens.
>
> What would be the situation of Propaganda if the *rents* were to suffer a reduction or if the payment were entirely suspended, as has happened in other countries? Who shall insure that it will be paid whole and punctually in circumstances of financial crisis, or of war, or on other unfortunate events? Is it forgotten that already, merely by way of "reprisal," the payment of ecclesiastical pensions attached to the sequestrated religious property has been suspended by the Piedmontese Government? The ever-increasing development of Catholicism among the heathen, and the increasing facility of communications, demand the foundation of new centers of missions, and, in consequence, the creation of seminaries, colleges, universities, apostolic vicariates, and prefectures. Finally, it is right to observe that Propaganda is not merely the principal center of the government of missions, but also that of an immense educational and scientific institution of the highest order, composing a college of more than a hundred pupils with innumerable chairs of literature, philosophy, theology, and philology; a library of extreme value, a most precious museum, and a polyglot printing-press.
>
> Taking these considerations as your guides, your lordship will have the goodness to call the attention of the Minister of Foreign Affairs to the gravity of this new attack on the rights of the Holy See; on the exercise of Pontifical power; on the free use of means indispensable in the propagation of the faith. Your lordship will take the opportunity to speak of the multiplied outrages and vexations which render the situation of the chief of the Church daily more painful. If reasons of right, and honorable influences, have been powerless to prevent a sentence so injurious and prejudicial to the Papacy, and so impolitic in the opinion of the judicious, it may well be feared that the audacity of the revolution may gain still more, and reduce the Sovereign Pontiff to most difficult straits.

This was followed by a circular letter of the Sacred Congregation de Propaganda Fide to the Catholic bishops throughout the world, in which was said:

> The Holy Father, most deeply grieved by this new and overbearing attack on the imprescriptible rights of his apostolate, and foreseeing the deplorable consequences which will arise from the conversion of the present patrimony of the Sacred Congregation—a patrimony, moreover, already alienated for the greater part by the Government "*lite pendente*"—feels it his duty to provide in the best possible manner for the future security of so deserving an institution. With this object, he has, therefore, deigned to command me to declare, as I now do by this present circular, that henceforth the administrative seat of the Propaganda, for all donations, legacies, and offerings by which the piety of the faithful may wish to meet the constant and considerable expenditure of the institution, is transferred out of Italy. And for the greater general convenience, he has decided to establish in different parts of the world centers of *procurations*, where the offerings of the faithful may be put out of all danger, and be at the free and independent disposal of the Sacred Congregation for the benefit of the missions.

The action of the Italian Government, through a court in its pay, to sell property in which all the Catholic churches in mission countries throughout the world were interested, and to deposit the proceeds in the national treasury, excited protests in all countries. As the American College at Rome was directly menaced, Cardinal McCloskey, Archbishop of New York, at once addressed President Arthur to claim the protection of the United States for the college. Secretary Frelinghuysen, through Mr. Astor, the American minister at Rome, laid a protest before the Italian Government, which in March annulled, so far as the American College was concerned, the judgment of the Court of Cassation. As the question still remained in regard to other property, meetings were held in various parts—notably in the United States, Canada, Great Britain, and Ireland—at which protests were made, and the Episcopate in many countries appealed to their governments to protect their rights menaced by the Italian Government.

On April 20 Pope Leo XIII issued an encyclical renewing the condemnation of the Freemasons made by his predecessors, which was followed, May 10, by a circular of Cardinal Monaco. Pope Leo encouraged devotion, especially prayers for the prosperity of the Christian religion, and the devotion of the rosary, though he discountenanced an attempt to celebrate a centennial of the birth of the Blessed Virgin Mary. He received several bodies of pilgrims at Rome, and when the cholera ravaged southern Italy, exerted himself to afford temporal and spiritual relief to the sufferers. On the 1st of May, by a *motu proprio*, he established a school of paleography, gave canonical erection to the American College, and presided over theological and philosophical debates. Decrees were issued in several causes for beatification of Ven. Diego de Cadiz, O. S. F., and Ven. Gertrude Salandri, O. S. D. (February 9), and Queen Maria Christina of Naples (July 1). Early in the year he addressed an encyclical to the bishops of France, on the trials of the Church in that country, and sent envoys extraordinary and delegates apostolic to Brazil, Peru, Ecuador, and Bolivia. The matter of church music was treated in a circular to the bishops of Italy.

During 1884 the Sacred College lost Cardinals De Luca, Bilio, Hassoun de Pietro, and Falloux, and the Pope created as cardinal priests Joseph Sebastian Neto, Patriarch of Lisbon, and William Sanfelice de Acquarella, Archbishop of Naples, on the 24th of March; Anthony Monescillo y Viso, Archbishop of Valencia; Celestine Ganglbauer, Archbishop of Vienna; Zephyrin Gonzales y Diaz Tunon, Archbishop of Seville; Peter J. M. A. Celesia, Archbishop of Palermo, and William Massaia, on the 10th of November; and created cardinal deacons, Carmine Merosi-Gori, Ignatius Masotto, and Isidore Verga, on the same day.

In Prussia, though the attempts of the Catholics to have the May laws absolutely repealed failed, their severity was greatly abated. At the beginning of the year the Government authorized 119 priests in the single diocese of Breslau to say mass, thus exempting from fine and imprisonment; priests that had been debarred by the law from officiating for their flocks were restored to their salaries in the dioceses of Kulm, Ermeland, and Hildesheim, but in other dioceses the laws were enforced.

In Austria a mob invaded a church where a preacher was denouncing socialism, and great excesses followed.

In Belgium the Catholic spirit was revived by the freedom given to education, and by the honors paid on March 2 to the blessed Charles the Good, Count of Flanders, who had been beatified Feb. 9, 1882.

In France, Government showed an antagonism in reducing the appropriations for salaries of the Catholic clergy, and in passing an act allowing divorces.

Catholic interest in the United States turned on efforts in Rhode Island, Kentucky, New York, and Pennsylvania, to obtain for Catholic inmates of State penal and eleemosynary institutions the privilege of having Catholic worship on Sundays and exemption from compulsory attendance at Protestant services. The awakening of an historical interest was shown on the centenary of Father Juniper Serra in California, and on the establishment of Catholic Historical Societies in Philadelphia, New York, and Pittsburg. The great event was the assembling (November 9) of the third Plenary Council at Baltimore, which continued its sessions to December 7. It was presided over by Archbishop Gibbons, of Baltimore, who had been appointed by the Pope Apostolic Delegate. There were present fourteen archbishops, sixty bishops, and one prefect apostolic from the United States, with five visiting bishops from other countries, and thirty abbots or superiors of religious orders. The decrees were not made known, but were reported to embrace the establishment of rectors irremovable except for cause, who were to have the selection of candidates for the episcopal see when a vacancy occurred; the adoption of a catechism for the whole country, and the erection of a Catholic university.

The Catholic missions suffered in Soudan, where they were broken up in consequence of the fanaticism excited by El Mahdi. Seven priests and four sisters died of exposure or were massacred, according to reports that reached Cairo. The war of the French with Tonquin, which resulted in hostilities with China, led to massacres of Christians in the Annamite districts of Phanhoa and Ngehn. Christians were also persecuted in Cochin-China, and in China itself.

ROUMANIA, a kingdom of eastern Europe, formerly a province of Turkey. Absolute independence was proclaimed May 22, 1877, and was recognized by the powers at the Congress of Berlin, June 13, 1878. The principality of Roumania was erected into a kingdom March 26, 1881. The Constitution was elaborated by a Constituent Assembly in 1866, and modified in 1884 by the Chambers. It delegates the legislative power to the Senate, of 120 members, and the Chamber of Deputies, of 188 members, chosen by electoral colleges in each district. Every taxed citizen is a voter.

The King, Carol I, the son of Prince Hohenzollern-Sigmaringen, was born April 20, 1839. He was elected Prince of Roumania in 1866, after the abdication of Couza, who was elected Hospodar of Moldavia and Wallachia in 1859, and assumed the title of Prince Alexander John I upon their union into the principality of Roumania in 1861. The executive authority is exercised by a council of eight.

The ministry is composed of the following members: President of the Council and Minister of the Interior, J. C. Bratiano; Minister of Public Instruction and Worship, G. Kitzu; Minister of Foreign Affairs, D. Sturdza; Minister of Finance, G. Lecca; Minister of Agriculture, Commerce, and Domains, J. Campineano; Minister of Justice, N. Voinov; Minister of War, Gen. E. Falcoiano.

Area and Population.—The area, as fixed by the Treaty of Berlin, is about 49,979 square miles. The latest census taken in Roumania gives the number of inhabitants at 4,424,961. The capital, Bucharest, contains 221,000 inhabitants; Jassy, 90,000; Galatz, 80,000. The number of marriages in 1883 was, exclusive of the Dobrudja, 44,114; births, 205,337; deaths, 125,677.

Finances.—The accounts for the fiscal year ending March 30, 1882, state the total receipts as 207,378,363 lei, or francs, and the expenditures as 200,020,715 lei. The budget for 1884–'85 makes the receipts 130,269,433 lei, of which 24,930,000 are derived from direct taxes, 58,330,000 from indirect taxes, 20,075,566 from the domains, 9,617,925 from public works, and the rest from the other ministries, a part of the surplus of 1882–'83, and from other sources. The expenditures are made to balance the receipts, 50,130,064 being devoted to the requirements of the public debt, 30,551,213 to military expenses, 12,786,239 to instruction and worship, and the remainder to the other ministries and various expenses. The public debt is divided into two classes—the budget loans and railway construction loans. The former amounted, April 1, 1884, to 311,141,900 lei, the largest part bearing interest at 5 per cent. and provided with sinking funds to redeem the last bonds in 1926. The latter amounted to 368,842,279 lei, the main loans paying 6 per cent. interest, and all, except the two oldest loans, redeemable before 1923. About one third of the public debt is held in Roumania, and the rest mainly in Germany.

The Army.—The military force is composed of the standing army with its reserve, the territorial army with its reserve, the militia, and the levy in mass. The law of 1876, modified in 1882 and 1883, obliges every Roumanian capable of bearing arms to serve, in person, three years in the standing army and four years in the territorial cavalry or four in the territorial infantry. The effective strength of the active army on the peace footing is 1,200 officers and 18,532 soldiers, with 2,945 horses and 180 guns. The territorial army can muster about 120,000 men. The fortification of Bucharest by a ring of nineteen forts was authorized in 1884.

Commerce.—The total value of the imports in 1883 was 359,907,178 lei, against 268,851,921 in 1882, 274,757,458 in 1881, and 225,336,415 in 1880; the total value of the exports in 1883 was 220,650,279 lei, against 244,730,199 in 1882, 206,518,317 in 1881, and 218,918,878 in 1880. Of the total imports in 1883, 153,973,000 lei came from Austria-Hungary, 78,743,000 from Great Britain, 43,887,000 from Germany, 36,491,000 from France, and the rest from Turkey and other countries; of the total exports, Great Britain received 88,649,000 lei, Austria-Hungary 71,478,000, and France 19,088,000. The imports and exports of the principal classes of merchandise were valued in 1883 at the following amounts in lei:

CLASSES OF COMMODITIES.	Imports.	Exports.
Cereals	7,000,000	172,500,000
Animals	4,000,000	11,600,000
Hides and leather	48,700,000	6,400,000
Timber and wood manufactures	18,800,000	8,100,000
Textile materials and manufactures	117,600,000	6,200,000
Metals, and manufactures thereof.	63,100,000	1,800,000
Oils, fats, etc.	8,700,000	200,000
Total	267,900,000	206,800,000

The exports of milk and cheese average 5,000,000 francs a year, those of fruits and vegetables 7,500,000 francs, those of timber 5,000,000 francs, those of live animals 17,000,000 francs. The timber of the Roumanian forests is exported in large quantities at very low prices and is consumed without stint for fuel.

Agriculture.—The Roumanians are almost exclusively engaged in agriculture. The population is only forty to the square kilometre, and the method of cultivation is expensive. Nearly half the area of the kingdom is cultivable soil, but of the tillable land not much more than a third part is under the plow, nearly half lying in pasture, a twelfth part being meadow, and a twenty-fifth vineyard and garden. Of the lands not suitable for cultivation, two thirds are sterile and unproductive, and one third is covered with forest. The pasture-lands are mainly leased from the large proprietors by the sheep-growers. The country is rich in both sheep and cattle, possessing 5,000,000 head of the former and 3,000,000 of the latter, besides 500,000 goats, and over 1,250,000 swine. The lowlands in Roumania, as in the neighboring parts of Austria and Russia, are covered with a black humus a metre deep on the average. Manure is never used, yet the wheat-lands show no sign of exhaustion. The creation of a peasant proprietary has long been the aim of the Roumanian statesmen. Emancipated from serfdom in 1848, but not endowed with lands, the peasants were left in the same dependence on the boyars as before. In 1864 Prince Couza issued an edict making them the owners of the lands that they held in actual possession, giving the proprietors an indemnity amounting to 14,000,000 francs. By this act 400,000 peasant families were made the owners of about the eighth part of the land. They were prohibited from alienating their possessions for a period ending in 1884. This term has been extended by the Legislature for thirty-two years longer. The state domains, derived partly from the expropriation of monastic estates, have been offered in small parcels under easy conditions to enable the peasantry to enlarge their possessions, a privilege of which the large land-owners have also taken advantage. Foreigners and Jews are not allowed to acquire land in Roumania. The Roumanian proprietors receive usually a net annual profit of 6 per cent. on the market value of their land.

Navigation.—The total tonnage entered at the Roumanian port of Sulina, on the Danube, in 1883 was 829,988, against 915,259 tons in 1882; the tonnage cleared, 831,016, against 904,676.

Railroads, Posts, and Telegraphs.—The length of the state railroads in operation July 1, 1884, was 1,401 kilometres; under construction, 546 kilometres; under contract, 224 kilometres. The total cost of construction was 416,950,000 francs; gross receipts in 1883, 26,936,952 francs; expenses, 16,305,687 francs.

The number of private letters forwarded in 1883 was 7,825,709; of official letters, 2,024,699; postal-cards, 1,300,216; newspapers and circulars, 4,065,813; parcels, 485,869 private and 85,006 official; postal orders, 129,257.

The length of telegraph lines in 1883 was 4,755 kilometres; of wires, 9,989 kilometres; the number of private internal messages, 723,183; external, 318,391. The receipts of the postal and telegraph service amounted to 4,081,136 francs, the expenses to 3,930,272 francs.

The European Commission of the Danube.—After the expiration of the term of the Danube Commission, created by the Treaty of Paris in 1856, and continued and endowed with larger powers by the Berlin Treaty in 1878, a new commission was constituted, which held its first meeting Nov. 3, 1883. The financial accounts for 1883 show receipts to the amount of 3,966,791 francs, and expenditures amounting to 2,706,107 francs. The only remaining debt of the commission, 2,528,690 francs, was extinguished in 1883. The total tonnage entering the Sulina mouth of the Danube in 1883 was 784,903. The steam tonnage was 706,520, of which 549,520 tons were English, 65,125 French, 51,512 Greek, and 12,777 German. The sailing tonnage was 78,383, of which 35,714 tons were Greek and 33,799 Italian. The principal article of export is grain. In 1882 the exports of cereals from the ports of the lower Danube were 6,629,843 quarters, against 5,401,441 in 1881.

Revision of the Constitution.—The political question of the year was that of electoral reform. The subject came to an issue in the Chambers in the spring. As has happened before when similar questions have arisen, C. A. Rosetti, the intellectual leader of the Government party, whose uncompromising radicalism has rendered him impracticable as a minister, differed with Bratiano, the Premier, on an important point in the programme. The system of different classes of voters was the object of Rosetti's attack. When the committee on electoral revision made their report to the Chamber in the beginning of April, a vote was taken on Rosetti's proposition to abolish the separate classes, by which the ministry was left in a minority of 48 to 57. Bratiano and his colleagues thereupon offered to resign, but the King declined to accept their resignations, and they were induced to remain by a vote of confidence. Mustering its supporters, the ministry obtained a reversal of the previous vote. The revision scheme was carried through the Legislative Chambers, which sat in extraordinary session for the revision of the electoral law and certain other articles in the Constitution, from May 22, 1883, to June 20, 1884, and received the signature of King Carol July 12. It wrought no radical change in the electoral system, but was a compromise between the advocates of democratic principles and the old aristocracy, like the original electoral law of 1866, which it modifies in a liberal direction. It effects, nevertheless, a material transfer of political power. The law of 1866 gave the landed aristocracy half the votes for the lower chamber, and made the Senate a body representing that class and the ecclesiastical hierarchy exclusively. Under the old law two senators were elected in each district, one by the rural proprietors, and one by the owners of town property that received a clear annual rent of at least 300 ducats, or 2,170 francs. The Church possessed a seat and a vote for every diocese. Under the new law the rural and urban proprietors vote in one body, while the cense is reduced to 2,000 francs, and senators and deputies that have served two terms in the Legislature, ministers and ex-ministers, judges, staff-officers, doctors established six years, members of the Academy, and certain others, possess votes without respect to their landed possessions. Furthermore, a second electoral college is created, which includes proprietors deriving an annual profit from land of at least 800 francs, professional men and magistrates not in the first class, and also merchants and manufacturers paying a certain amount of taxes. The old electoral law for the Chamber of Deputies established four classes of electors. The first class was identical with the senatorial electorate; the second comprised all that received a clear annual rent of 100 ducats; the third embraced the mercantile and industrial classes, with the limitation of eighty piasters paid in direct taxes, and members of the liberal professions; the fourth embraced all Roumanian citizens not included in the other classes. The electors of the first three classes voted directly, those of the last indirectly, every fifty voters choosing a secondary elector. The new law merges the first two classes into one, which elects proportionally as many deputies as both classes formerly. The property qualification is fixed at 1,200 francs. The third class, the second under the new law, is widened so as to include all citizens that have received a complete common-school education, while for others the limitation is raised to twenty francs direct taxes. The lowest class, which comprises the great mass of the rural population, was subjected to an important change. Every citizen receiving an income from real estate of over 300 francs, if he is able to read and write, casts his vote directly; the rest, except clergymen and tenants paying 1,000 francs rent, who also vote directly, exercise the franchise through electors as before. The Assembly of Revision also bestowed salaries on members of the Senate. Another modification of the electoral laws furnishes a safeguard against arbitrary attempts of the ministers in power to alter the results of elections by requiring a two-third majority of the Chamber or Senate to declare illegal the election of a member returned in due form.

Other changes of importance were wrought in the Constitution. The alteration in the first article simply adapts the Constitution to the territorial changes accomplished by the Treaty of Berlin. The article, which declared that the principalities of Moldavia and Wallachia are united in an indissoluble state, constituted under the name of Roumania, now says that the kingdom of Roumania is united with its possessions on the right bank of the Danube to form an indissoluble state. The Dobrudja is, however, not yet brought under the Constitution. A separate clause was therefore enacted, which allows the chartered rights to be extended to the new districts by a simple act of the Legislature. A proposal to abridge the rights of the press created nearly as much excitement as the franchise question. The Constitution of 1866, liberal in every respect except in its electoral provisions, which were exacted by the Boyar party in return for its concessions on other points, gave a large liberty to the public press, as well as unrestricted rights of speech and public assembly. If the statesmen in power have sometimes laid themselves open to charges of corruption and nepotism, the Opposition press, on the other hand, has been unscrupulous and impudent in its personal attacks on ministers. All press derelicts were by constitutional provision tried before juries, who invariably acquitted the accused editors. Civil actions for damages were formerly laid before juries, but a new construction of the law has recently been advanced. The Senate now proposed that the Revisory Assembly should withdraw press actions from the juries and place them under the jurisdiction of the ordinary tribunals. The majority in the Chamber, on the other hand, insisted on a clear declaration subjecting civil as well as criminal cases to trial by jury and exempting accused journalists from arrest on the charge of offenses against the laws of the press. They carried out their views, accepting, by way of a compromise with the Senate, an amendment of Prince Sturdza, which excludes from jury trial press offenses against the King or members of the royal family, or against sovereigns of foreign states. The French institution of the National Guard was formally abolished, as incongruous in the new military system. The Liberals carried through an amendment guarding against the revival of the Council of State, which was abolished by the Constitution of 1866, in the guise of an administrative council; yet they agreed to a provision for the eventual establishment of a permanent commission with advisory powers for the preparation of legislative bills and administrative decrees. The proposition to appoint under-secretaries to represent the ministries in Parliament was also approved. The amendment, which prolongs for thirty-two years the period during which the former serfs are forbidden to sell lands allotted to them by the state, applies likewise to the peasant proprietors of the Dobrudja who received their holdings through the intervention of the state.

General Election.—In the beginning of October Parliament was called together for the purpose of receiving the decree of dissolution, in order that the elections for a new Parliament, chosen under the revised electoral law, might take place before Nov. 27, the date appointed by law for the opening of the regular session. The Government party achieved a complete victory. On December 5 the Bratiano ministry handed in their portfolios, in order that a new Cabinet might be formed which would represent the majority lately returned by the constituencies. In accordance with a resolution passed by Parliament in secret session, they recalled their resignations and continued in office.

The Disabilities of the Jews.—Under the pressure of the powers at the Berlin Congress, the Roumanian Government undertook to rescind the article of the Constitution of 1866 excluding Jews from civil rights. The Constituent Assembly of 1879 accordingly modified the article in such a way as to remove the religious disabilities, and yet leave its provisions still effective against the numerous Jewish population of Roumania. To do this, it substituted the word "foreigner" for "non-Christian," thus incapacitating the citizens of other states from acquiring land and the other rights that had previously been withheld from the Hebrews. This enactment shut out foreign capital from the agricultural development of the country. In certain cases it worked hardship for heirs of Roumanian estates who were citizens of other countries. The Jews of Roumania, though their ancestors for centuries had resided in the country, were legally foreigners. Their petitions for naturalization were not granted, except in the rarest instances. The Jews were worse off than before, because, when they returned from a sojourn abroad, the officials began to demand their passports. Jews who wished to go out of the country were provided with emigration certificates, and prohibited under severe penalties from returning. Fresh disabilities were imposed on Jews, or, since the change in the Constitution, on foreigners, which deprived the Roumanian Hebrews of their means of livelihood. They were prohibited from dealing in spirits and tobacco, and from being brokers on the Bourse or in trade. They were ordered to withdraw from the villages and rural districts into the towns, on forty-eight hours' notice. There was a law passed in April, 1884, forbidding the peddling of any kind of merchandise, except articles of food—an act which was directed against the Jews, who were almost the only class employed in this business. It was even proposed to exclude foreigners from the trade-guilds, though three fourths of the artisans in Roumania are Jews. The exclusion of foreigners in general from the ownership of land was a popularly approved feature in the ministerial policy. An act was passed in February, 1884, extending the disability to foreign joint-stock companies.

RUSSIA, an empire in eastern Europe. The law-making, executive, and judicial authority is concentrated in the person of the Emperor, who is also the spiritual head of the Church. The government of the country is under the supreme direction of the Emperor's private Cabinet. Subordinated to the Imperial Cabinet is the Council of the Emperor, divided into a legislative, an administrative, and a financial department, the functions of which are to superintend the administration of the laws, and to suggest alterations and amendments. A second great council is the directing Senate, which is the highest court of judicature, besides exercising a control over the other tribunals of the empire. It is divided into eight sections, each of which acts as the court of final resort in a particular branch of the law. A third great governing body is the Holy Synod, directing ecclesiastical affairs. All its decisions must be ratified by the Emperor.

The Imperial Cabinet is divided into eleven departments. The Minister of the Imperial Household is Gen. Count Vorontzoff Dashkoff, who succeeded Count Adlerberg in 1871. The Minister of Foreign Affairs is Nicholas de Giers, who was the practical head of the department for some years before the retirement of Prince Gortchakoff in March, 1882. The Minister of War is Gen. Vannovski, appointed in March, 1881. The Minister of the Interior is Count Tolstoy, who succeeded Gen. Ignatieff in June, 1882. Baron Nicolai was succeeded in 1884 by M. Delianoff as Minister of Public Instruction. The Minister of Finance is M. Bunge, successor to Count Abaza. The Minister of Domains is M. Ostrovski. The Minister of the Navy, which is under the command of the Admiral-General, the Grand Duke Alexis, is Vice-Admiral Chestakoff. The Minister of Public Works is Vice-Admiral C. Possiet, appointed in 1874.

The Lieutenant of the Emperor in the Caucasus is Prince Dondoukoff-Korsakoff. The chief of the first section of the Privy Council is Secretary of State Taneieff; of the second, R. Gerhard, *ad interim*. The adjunct in charge of the third section is Lieut.-Gen. de Richter. The President of the Council of the Empire is the Grand Duke Michael; the heads of the three departments are Baron Nicolai, M. Stoianovski, and M. Abaza. The head of the Ministry of Justice is D. Nabokoff. The President of the Holy Synod is Isidore, Metropolitan of Novgorod, St. Petersburg, and Finland; the Procurator-General, M. Pobedonostzeff. The Comptroller-General of the Empire is Secretary of State Solski. The Governor-General of Poland is Gen. Gurko.

Area and Population.—The area of the Russian Empire is 22,397,460 square kilometres, or 8,614,400 square miles. The following table gives the area in square kilometres and the population of the main political divisions of the empire, according to the latest estimates:

DOMINIONS.	Square kilometres.	Population.
Russia in Europe..........	4,888,718	76,589,965 ('81)
Kingdom of Poland........	127,310	7,319,980 ('81)
Grand Duchy of Finland...	373,608	2,111,240 ('82)
Caucasus..................	472,666	6,449,850 ('82)
Transcaspian territory.....	522,500	650,000
Siberia.....................	2,495,110	3,965,200
Central Asia...............	3,011,140	5,101,400
Sea of Aral................	66,998	......
Caspian Sea	439,418	......
Russian Empire.......	22,397,460	102,187,600

The following is a list of the cities that contained at the latest returns more than 100,000 inhabitants:

CITIES.	Population.
St. Petersburg	929,093
Moscow (1882).................................	750,867
Warsaw (1882)..................................	406,261
Odessa (1882)..................................	217,000
Riga (1881)....................................	168,844
Kazan	134,696
Kichinev (1880)..................................	130,000
Kiev (1874)....................................	127,251
Saratov (1880).................................	109,568
Kharkov..	128,445

In Asiatic Russia, Tiflis contained in 1876 104,024 inhabitants, and Tashkend has about 100,000.

Commerce.—The total value of the imports in 1882 was 566,300,000 rubles (the silver ruble has a value of 73·4 cents), against 517,700,000 rubles in 1881, and 412,500,000 rubles in 1878. The imports from Finland were 15,600,000 rubles, against 10,400,000 in 1881; from Europe, 518,400,000, against 476,100,000 rubles; from Asia, 32,300,000, against 31,200,000 rubles. The total value of the exports in 1882 was 617,800,000 rubles, against 506,400,000 in 1881, having increased from 364.500,000 in 1878. The exports to Finland were valued at 13,300,000 rubles, against 12,000,000 in 1881; to Europe at 590,700,000, against 481,300,000 rubles; to Asia at 13,800,000, against 13,100.000 rubles. The extent of the trade with the principal foreign nations in 1882 is shown in the following table, giving in round numbers the values of the imports and exports in rubles:

COUNTRIES.	Imports.	Exports.
Germany	214,189,000	178,019,000
Great Britain	124,709,000	210,099,000
France	21,018,000	54,442,000
Austria-Hungary	29,908,000	33,807,000
Belgium	12,070,000	29,056,000
Netherlands	9,885,000	29,308,000
Turkey	21,200,000	15,659,000
Italy	9,847,000	8,806,000
Sweden and Norway	6,684,000	12,183,000
Denmark	....	8,461,000
Greece	1,900,000	4,514,000
Roumania	2,000,000	6,878,000
United States	34,529,000	....
China	19,744,000	2,642,000
Persia	8,452,000	4,424,000
Other countries	52,869,000	24,758,000
Total	567,979,000	617,796,000

The total value of merchandise imported from European countries through the ports of the Baltic in 1882 was 190,500,000 rubles, exports 205,040,000 rubles; imports by way of the land frontiers, 268,735,000 rubles, exports 180,541,000 rubles; imports by way of the Black Sea ports 58,302,000 rubles, exports 196,555,000 rubles; imports through the ports of the White Sea 826,000 rubles, exports 8,537,000 rubles.

In the commerce with European countries in 1882 the exports of cereals amounted to 321,042,000 rubles, imports 5,957 rubles; the imports of spirituous liquors to 16,124,000, the exports to 6,619,000 rubles; imports of groceries 58,855,000, exports 720,000 rubles; exports of vegetables and fruits, 47,537,000, imports 14,187,000 rubles; exports of animals, meat, and provisions 26,656,000 rubles, imports 11,721,000 rubles; total imports of articles of consumption 112,816,000 rubles, total exports 403,164,000 rubles. The imports of fuel amounted to 18,173,000 rubles, exports 70,000; imports of mineral products 32,630,000 rubles, exports 3,160,000; imports of raw metals 11,954,000 rubles, exports 16,624,000; imports of skins, leather, hair, and furs 127,986,000 rubles, exports 106,007,000; imports of textile materials 1,629,000 rubles, exports 35,044,000 rubles; total imports of raw materials 192,872,000 rubles, total exports 160,905,000 rubles. The imports of glass and pottery amounted to 6,225,000 rubles, exports 300,000; the imports of textile manufactures and clothing to 27,603,000 rubles, exports 3,926,000; imports of metal manufactures, machinery, time-pieces, etc., 66,631,000 rubles, exports 1,227,000; imports of manufactures of wood 5,950,000 rubles, exports 727,000; total imports of manufactured articles 106,409,000 rubles, total exports 6,180,000 rubles. The imports of drugs, chemicals, and colors were of the value of 54,421,000 rubles, exports 46,000; imports of gums, oils, and fats 28,175,000 rubles, exports 6,172,000; imports of other articles 24,170,000 rubles, exports 14,256,000; total miscellaneous imports 106,766,000 rubles, total exports 20,474,000 rubles. The imports of specie in 1882 amounted to 9,149,000 rubles, and the exports to 76,620,000 rubles, making the total import commerce with Europe 527,512,000 rubles, and the export commerce 667,848,000 rubles. Of the imports from Finland in 1882, reported as 15,088,000 rubles, 9,673,000 rubles represented manufactured products, 3,505,000 raw and partly manufactured products, and 1,910,000 articles of food and consumption; of the exports, amounting to 13,214,000 rubles, 8,234,000 rubles represented articles of consumption, 2,888,000 manufactured objects, and 2,092,000 raw materials and partly manufactured products. The total merchandise imports from Asia amounted to 32,853,000 rubles, consisting of tea, of the value of 19,188,000 rubles, fruits and legumes, textile materials and manufactures, leather and peltry, cereals, etc. The exports to Asia amounted to 13,798,000 rubles, the leading articles being textile manufactures of the value of 3,615,000 rubles, textile materials of the value of 2,196,000 rubles, and cereals of the value of 1,565,000 rubles. The imports of the precious metals from Asia were 625,000, and the exports to Asia 3,898,000 rubles, making the total import trade 33,478,000 rubles, and the export trade 17,696,000 rubles.

Petroleum.—The naphtha production of Russia increased from half a million poods in 1875 (1 pood = 36 pounds) to 25,000,000 poods in 1880, 30,000,000 in 1881, 50,000,000 in 1882, and 60,000,000 in 1883. The manufacture of petroleum increased from 7,858,750 poods in 1880 to 11,634,285 in 1881, 12,471,715 in 1882, and 14,252,626 in 1883. In the first six months of 1884 the production of both the raw and the refined oil in the Baku district was 50 per cent. greater than in the corresponding part of the preceding year. The industry was greatly stimulated by the opening, in 1883, of the Transcaucasian Railroad from Baku to Tiflis, through Batoum and Poti, by means of which petroleum can be exported to western Europe by way of the Black Sea. The exports to Europe increased 300 per cent. in 1883, and in a much greater proportion in 1884. The shipments to European countries by way of the Black Sea of illuminating oil during the first eight months of 1884 amounted to 2,173,000 poods. Including lubricating oil and other petroleum products, the exports by this route were valued at 3,395,000 rubles. The exports across the Russian land frontiers were only 378,000 poods of illuminating oil. From the waste products a fuel is obtained which is cheaper than coal. It is used on the steamers of the Caspian and the Black Sea, and in a large number of factories that have been started on the banks of the Volga. Russian petroleum has driven American oil out of the Russian market. In 1872 nearly 15,000,000 gallons of American petroleum were exported to Russia. In the first eight months of 1883 the shipments were 1,267,512 gallons. In the same part of 1884 they fell off to 108,981 gallons. The exports to Austria declined from 7,893,-

784 gallons in eight months of 1883 to 8,341,163 gallons during the same period in 1884. The competition of the Russian article in Turkey also began to be felt, the exports from the United States declining from 4,446,485 to 4,402,180 gallons. In Austria crude Russian petroleum is sold to the refiners, and the manufactured article is sent in American cans with American brands. An effort has since been made to drive American oil from the German market. It is expected that the Russian oil can be laid down in Berlin twenty-five cents per fifty kilos cheaper than the American article. Large shipments were made in tank-cars built for the purpose in Germany, by rail to Gaudens on the Prussian frontier.

The thrifty Armenians first turned to commercial account the Baku oil-wells. The Russian Government granted the monopoly of the state wells to an Armenian capitalist, under whose management the production rose from 1,300,000 gallons in 1850 to 8,572,000 in 1870. Mr. Nobel, a manufacturer of ordnance, turned his attention to the oil industry at that time, and succeeded in having the monopoly abolished. Through his enterprise numerous shafts were sunk in the five wells where the flow was most abundant. A manufacturing town arose two miles from Baku, with about two hundred oil-refineries. The production of naphtha had increased in 1882 to 200,000,000 gallons. The Russian crude petroleum is much heavier than the American, containing only 25 or 30 per cent. of kerosene, while American rock-oil yields from 70 to 75 per cent. The Baku refiners formerly injured their trade by selling an inferior, smoky, and dangerous mixture of kerosene, benzine, gasoline, and lubricating oil. In Nobel's great refineries, and those of the more honorable and progressive manufacturers, the various products are separated and turned to account when of commercial value. The *astatki* or heavy residuum, which is the fuel of the steamers on the Caspian and the Volga, was thrown away by the Armenian refiners. Its utility was experimentally established in 1869. It takes up half the room of coal, is much cleaner, and requires less labor and supervision. The Russian illuminating oil, when thoroughly refined, is claimed to be superior to the Pennsylvanian product in lighting properties. Oil-wells have been worked in the Tiflis and Elizabethpol governments, and in Terek, Kuban, and Daghestan; but everywhere, except in the Baku district, the production has gone backward.

The Cattle-Plague.—The cattle-plague, though not the true Siberian pest, but a severe type of splenic fever, raged with unusual severity in 1884 in various parts of European Russia and in Siberia. The losses in European Russia alone were estimated in the summer at 47,000,000 rubles. Many cases occurred among human beings. The only way in which it was contracted, except in the rare instances when flies were the medium of communication, was by handling the skins of diseased carcasses. The peasants, wishing to save the hides, would skin the animals by night, as it was forbidden by law, and in so doing frequently cut themselves, and took the contagion into their blood. Many of the hides came into the market, particularly in Odessa, spreading the disease among the herds of new localities, and occasionally infecting the working-men with malignant pustule.

Navigation.—The number of vessels entered at Russian ports in 1882 was 13,638, of which 7,969 were laden and 5,669 in ballast. The total number of steamers was 7,288. The number cleared was 13,354, of which 11,086 were with cargoes; the number of steamers, 7,154. Of the total entries in 1881, 2,489 were under the Russian flag, 2,930 under the English, 2,257 under the German, 1,563 under the Swedish, 527 under the Turkish, 986 under the Greek, 892 under the Danish, 763 under the Austrian, and 363 under the Dutch and other flags. Of the total entries in 1882, 7,014 were in the ports of the Baltic, 4,835 in the southern ports, 757 in the ports of the White Sea, and 1,032 in those of the Caspian Sea. The entries of coasters were 35,083 in number, 24,865 with cargoes and 16,488 steamers. The merchant marine in 1878 numbered 3,643 sailing-vessels, of 308,230 tons, and 259 steamers, of 74,324 tons.

Railroads.—The network completed in the beginning of 1884 measured 24,475 kilometres, exclusive of the railroads of Finland. The total length of railway in operation Jan. 1, 1882, was 22,648 kilometres; the receipts in 1881 were 200,404,244 rubles, the working expenses 145,974,500 rubles.

The Post-Office.—The number of ordinary letters forwarded in 1882 was 126,113,597, of registered letters 9,272,753, of inclosures under band 13,836,189, of money inclosures 9,900,843, of journals and periodicals 100,185,831, the money forwarded 3,891,968,064 rubles.

Telegraphs.—The length of telegraph lines belonging to the state was 97,000 kilometres in 1883, the length of wires 179,789 kilometres, the length of lines belonging to railroad companies 3,837 kilometres, the length of wires 48,791 kilometres. With the 3,634 kilometres of the Anglo-Indian line, and the private, military, and other lines, the total length of telegraph lines in the empire was 105,161 kilometres; of wires, 287,634. The number of private domestic dispatches in 1883 was 8,861,085, of foreign dispatches sent 574,811, received 576,100; receipts in 1883, 35,026,224 francs, expenses for service 16,642,717 francs, for maintenance and materials 12,908,026 francs, for the construction of new lines 3,113,912 francs.

Finland.—The Emperor of Russia is Grand Duke of Finland. The Constitution adopted at the Diet of Borga was confirmed by Alexander I in 1809, and by subsequent emperors. The government is representative. The Governor-General is Gen. Count Heiden.

The area of the duchy is 373,603 square kilometres. The population on Dec. 31, 1882, was

2,111,240, of which number 1,034,505 were males and 1,076,735 females. The number who were adherents of the Lutheran confession was 2,069,720, of the Greek Orthodox 39,221, of the Roman Catholic 2,299. The number speaking Finnish was in 1880 1,756,381, Swedish 294,876, Russian 4,195, German 1,720, Lapps, etc., 961. Helsingfors, the principal city, has a population of 45,919 souls. The number of marriages in 1882 was 15,928, of births 78,245, of deaths 49,013; excess of births 29,232.

The total value of imports in 1882 was 167,100,000 gold marks (the Finnish mark is the equivalent of the franc), of which 71,700,000 marks were from Russia, 42,600,000 marks from Germany, 15,900,000 marks from Great Britain, and 13,700,000 marks from Norway and Sweden; from the United States 2,200,000 marks. The total value of the exports was 119,800,000 marks; to Russia 54,500,000 marks, to Great Britain 24,400,000 marks, to France 10,400,000 marks, to Germany 8,300,000 marks, *to* Sweden and Norway 7,800,000 marks. The tonnage entered at Finnish ports in 1882 was 1,579,390 tons, of which 992,695 were under the Finnish flag, 62,624 under the Russian, and 524,071 under foreign flags. The tonnage entered with cargoes was 724,995, cleared with cargoes, 1,379,080; total clearances, 1,589,957 tons. The merchant navy consisted, Jan. 1, 1883, of 1,368 vessels, of 243,422 tons, using wind-power, and 225 steamers of 11,959 tons.

The railroad mileage in 1883 was 1,191 kilometres, of which all but 33 kilometres belonged to the state. The number of letters carried in the mails during 1882 was 3,078,202, including postal-cards; the receipts of the post-office were 896,356 marks; the expenses, 800,380.

The budget for 1884 makes the total receipts 37,570,211 marks, of which 6,859,700 are derived from the property of the state, 7,411,700 from direct taxes, 17,043,000 from indirect taxes, 1,104,000 from stamps, 2,631,192 from a military reserve fund, and about 2,500,000 from other sources. The expenditures are placed at 36,453,043 marks, of which 7,530,182 are devoted to military affairs, 5,959,550 to civil administration, 4,304,739 to education, science, and worship, 4,502,400 to the service of the public debt, 2,789,009 to public works and agriculture, 3,139,000 to railroads, 1,256,297 to public health, 1,279,317 to prisons, and 1,314,955 to dotations and pensions. The public debt on Jan. 1, 1884, consisted of an internal debt of 8,871,600 contracted to relieve lands of feudal dues, and foreign loans, paying for the most part 4½ per cent. interest, amounting to the sum of 59,734,034 marks.

The Army.—The effective strength of the field army on the peace footing in 1884 was 19,774 officers and 532,764 rank and file, including 29,460 non-combatants, with 333 batteries of artillery of 1,318 guns and 74,631 horses. The reserve troops numbered 3,536 officers and 68,786 soldiers. The army was organized in 768 battalions of infantry and 54 of riflemen, 330 squadrons of cavalry, 303 batteries of artillery with 4 guns each, and 30 of flying artillery with 6 guns each, and 29½ troops of engineers. The garrison and local troops in time of peace number 1,625 officers and 59,625 men, the depot troops 351 officers and 11,864 men, the troops of instruction 59 officers and 1,132 men, making the total peace effective of the regular army 699,516 officers and men, with 129,736 horses. The war effective is reported as 1,766,248 officers and men, with 222,936 horses and 3,644 pieces of field artillery. The Cossack troops have an effective of 51,946 officers and men, with 38,707 horses, in time of peace, and of 145,325 officers and men, with 138,036 horses, in time of war. The irregular troops number 5,776 men, with 5,327 horses, on the peace footing, and 6,331 men, with 5,382 horses, on the war footing. The total strength of the Russian army is 757,238 men in time of peace, and 1,917,904 in time of war. The disposable materials not entered in the reports would raise the effective to about 800,000 men in time of peace and 3,000,000 in war time. The number of soldiers under arms on Jan. 1, 1885, exclusive of the Cossacks and irregular troops, was reported as 662,449, with 30,889 officers.

The distribution of the principal part of the standing army among the military districts about the beginning of 1884, having a total strength of 28,074 officers and 836,145 men, was as follows: St. Petersburg 82,470, Finland 43,445, Wilna 104,366, Warsaw 110,287, Kiev 76,684, Odessa 63,438, Kharkov 63,146, Moscow 84,535, Kazan 39,826, Caucasus 99,854, eastern Siberia 17,058, Turkistan 26,679.

The Navy.—The Russian fleet in the Baltic consisted in 1883 of 31 ironclads with 335 guns, 37 armed steamers with 311 guns, 59 unarmed steamers, 8 sail-ships, and 95 torpedo-boats; the Black Sea fleet of 7 ironclads with 61 guns, 27 armed steamers with 105 guns, 59 other steamers, and 16 torpedo-boats. In the Caspian there were 12 steamers with 26 guns and 4 unarmed, and in the Lake of Aral 6 steamers with 13 guns. The Siberian fleet comprised 8 armed steamers with 42 guns, 13 unarmed steamers, and 6 torpedo-boats. The navy was manned by 3,930 officers and 25,806 sailors.

Two new armor-plated vessels, the Tohesma and Sinope, were expected to be completed in the spring of 1885. They are built entirely of steel, and lined throughout with water-tight compartments. They are alike in every respect. The length is 339½ feet, displacement 10,181 tons, armament 6 12-inch and 7 6-inch guns, engines 9,000 indicated horse-power.

Finances.—The financial accounts for 1883 state the total receipts as 708,712,000 rubles, 27,329,000 more than the estimates. The direct imposts produced 112,970 rubles, the license-taxes 19,704,000, the liquor-tax 251,887,000, the tobacco-tax 14,311,000, the sugar-tax 8,055,000, customs duties 94,461,000, stamps 15,518,000, registry dues 9,377,000, passports 3,-

261,000, navigation dues 808,000, head-tax on railroad passengers by express 8,347,000, duty on fire insurance 3,184,000, various imposts 2,790,000, mining royalties 719,000, mintage 954,000, the post-office 14,551,000, the telegraph service 8,547,000, the state railroads 4,171,000, forests 14,574,000, mines 4,906,000, farmed public property 7,420,000, sales of public property 5,118,000, various receipts from public property 669,000, special funds 12,447,000, receipts applicable to the service of the railroad debt 16,844,000, repayments 12,367,000, receipts from the Caucasus 7,239,000, state institutions 2,059,000, sales 2,685,000, fines 1,614,000, temporary receipts 2,422,000, incidental receipts 19,496,000, the *budget d'ordre* or formal entries 20,292,000. The total expenditures were 711,157,000 rubles, 13,761,000 less than the estimates. The public debt consumed 200,650,000 rubles, the central administration 2,211,000, the Holy Synod 10,304,000, the imperial household 11,462,000, foreign affairs 4,184,000, the military establishment 204,360,000, the navy 31,050,000, the financial administration 101,179,000, domains 20,001,000, the interior 68,131,000, public instruction 18,149,000, public highways 10,940,000, justice 17,297,000, control 2,411,000, the stud 912,000, Transcaucasia 7,916,000.

The budget for 1884, approved by the Emperor Dec. 31, 1883, makes the ordinary receipts 709,778,153, the *recettes d'ordre* 5,954,280 rubles, the extraordinary receipts 86,264,979 rubles; total, 801,997,412 rubles. This sum is balanced in the budget of expenditures, in which the ordinary expenditures are stated at 718,382,006 rubles, and the extraordinary at 74,661,126, and 3,000,000 rubles are allowed for unforeseen requirements, making with the *budget d'ordre* the same total sum.

The public debt on Jan. 1, 1882, amounted to 3,051,180,190 rubles, against 3,021,891,366 the year before. This sum does not include the railroad construction bonds and other debts to which special revenues are affected, which amounted at the same date to 630,555,049 rubles, against 624,718,749 in 1881. The earliest loans were contracted in guilders between 1798 and 1815. Of these there remained 18,600,000 guilders outstanding in 1882 and 41,632,743 rubles of the war debt of 1817, 119,319,345 rubles borrowed at 5 per cent. between 1820 and 1855, the consolidated debt of 1859 of 153,857,614 rubles, £6,640,000 of the sterling loans at 4½ per cent. from 1849 to 1860, £3,641,300 of the sterling debt of 1859 at 3 per cent., £15,000,000 borrowed in 1862 at 5 per cent., 61,806,000 guilders and £4,167,100 of the 5 per cent. Anglo-Dutch loans of 1864 and 1866, and 183,790,000 rubles of the internal loans of the same dates, and 789,386,200 rubles and £14,353,480 of the war debt of 1877–'79, also paying 5 per cent. interest, besides various smaller debts. Since the Turkish War the public debt has been increased by 216,000,000 rubles of treasury warrants and 350,000,000 rubles borrowed from the Bank of Russia unpaid Jan. 1, 1882, besides the paper currency, of which there were 716,515,125 rubles in circulation, protected to the extent of 171,472,495 rubles by a reserve. The original sum borrowed from the state bank was 500,000,000 rubles, repayable at the rate of 50,000,000 rubles a year, commencing with 1881. In 1883 the floating debt was increased by the issue of treasury notes to the amount of 24,000,000 rubles. In November of that year the Government entered the money market again and placed a gold loan of 50,000,000 rubles paying 6 per cent. interest. The debts of the kingdom of Poland, assumed by Russia and included in the public debt, amounted to 66,894,969 rubles. The railroad debts bear interest at 4, 4½, and 5 per cent., the loans for the indemnity of proprietors for peasants' lands and the liquidation of the old institutions of credit at 5 per cent. The expenditures for interest and amortization provided for in the budget of 1883 are 46,789,416 rubles on account of the foreign debts, 99,889,557 rubles on account of the domestic debts, and 52,401,184 rubles on account of the railroad debts.

A new gold loan of £15,000,000, bearing interest at 5 per cent., was put on the market at Berlin and Amsterdam in April and eagerly taken at the emission price of 90¼. In August, 1883, new emissions of paper rubles had increased the amount in circulation to 954,000,000. Warned by the fall of the exchange price, the administration determined to seek other means of covering deficits, and by a gradual retirement of the paper currency improve its value in the foreign money markets. On Aug. 1, 1884, the amount in circulation had been reduced to 898,000,000 rubles.

The Censorship of the Press.—The suppression of newspapers was pursued with relentless rigor in 1884, until not a single organ of independent opinion, not a journal representing the Liberal party, except a few insignificant sheets of dubious principles, continued to be published. In June the "Annals of the Country," a leading review, was confiscated. The "Dielo," another Liberal review, and the "Novosti," the only remaining daily paper in St. Petersburg, were threatened with the same fate. Literary men and journalists all over the country were arrested and fined. While the rest of the empire remained under the press law of Nicholas, in St. Petersburg and Moscow a newspaper could not be arbitrarily suppressed according to the press law of 1865, but was subject to the correctional censure, and by administrative order its sale on the street could be forbidden; it could be prohibited from printing advertisements, or it could be suspended for six months. The definitive suppression of a journal or a book in those cities could only be pronounced by a judicial decision according to the press law of 1865; yet, in 1872, this was amended in such manner as to transfer to the Council of Ministers the power to interdict a book or a periodical. In 1881 the authority to intervene in affairs of the press was vested in a committee of four, who act in the place of the full Ministerial Council. By another enactment the preventive censure in the case of newspapers was reestablished in another form. The Minister of the Interior can issue secret orders to editors to withhold certain news or to alter the tone of their comments under pain of suspension or suppression. Numberless circulars of this description have prevented the publication in Russia of many of the events of greater or lesser importance, or of comment on public questions except in praise of governmental measures. The press in Russia, with the exception of half a dozen semi-official organs, was altogether Liberal. The provincial papers, which had to submit their proofs to a censor before publication, and which were less dexterous in the insinuation of opinions they could not openly express than the metropolitan press, were strangled by official persecution, and all of the better class disappeared during the last reign. The newspapers of the two capitals kept up their popularity by varying servile praise, which every one recognized as perfunctory, with covert criticism and sly satire. In 1884 the ministry proceeded to crush them altogether. The editors were deprived of matter for publication by ministerial *ordonnances*, and so harassed by warnings, penalties, and suspensions that the few tame journals that still contrived to exist were wound up by their publishers. Scarcely a newspaper continued to be regularly published in Russia except the few reactionary organs, which have never found many readers.

The censorship of books was carried by Count Tolstoi to a still more extravagant pitch. Frequent orders were given for the confiscation of works that had entered into circulation with the imprimatur of previous censors. In August a more sweeping decree than any that had preceded it prohibited from circulation 125 works by Russian and foreign authors, many of which had supplied the chief intellectual food to the Russian educated class for a generation. The most popular and influential Russian authors were included in the interdict, and such English writers as Lyell, Huxley, Lubbock, Adam Smith, J. S. Mill, Herbert Spencer, Lecky, and Bagehot. The same order directed the police to suppress the circulation of 800 volumes of periodical literature. The interdicted books are confiscated when found on booksellers' shelves, are destroyed in public and circulating libraries, and can be seized in private houses. A subsequent enactment prohibited youths under sixteen years of age from obtaining or reading any work without the express permission of their teachers.

Education.—The new reaction against education was inaugurated after the student disturbances of 1860. In consequence of Karakasoff's attempt on the life of the Emperor, Count Tolstoi was empowered to purify the secondary schools. The intellectual life of the universities was blighted by placing professors and students under the censorship and discipline of military martinets. The school-boys in the classical and scientific preparatory schools were subjected to police surveillance, and held accountable for their political opinions. In September, 1883, traces of a criminal propaganda were reported in thirteen gymnasiums, one pro-gymnasium, and ten *real*-schools, and "collective disorders" in fourteen gymnasiums and four *real* schools. In the gymnasiums, which are the schools of the aristocracy, the system of instruction was altered for the distinct purpose of stunting thought and knowledge. All studies were practically banished from the curriculum in favor of the classics, and classical training was reduced to a sterile drill in grammar. The literature and history of Greece and Rome were not studied, for fear of their contaminating political influence. The training is as severe as it is irrational. As the result of the examinations of 1879 the number of students that completed the course was 6,511, while 51,406 had failed during the seven years. The *real*-schools are intended to prepare young men for practical life, or for the higher technical schools, and are attended by sons of the middle class and of the lesser nobility. There are only 39 of these, as compared with 180 gymnasiums. The instruction is purely theoretical, conducted from textbooks. Only one fifth of the students that qualify themselves for admission to the superior professional schools can be received. The ministry have rejected all petitions for the establishment of new technical colleges at Kharkov and other places. In 1881 the Zemstvo petitioned the Government to allow graduates of the *real*-schools to enter the universities. The ministers appointed a commission to consider the question, but, when the date arrived for the meeting of the commission, postponed the inquiry indefinitely.

A new regulation for the universities was issued in the autumn. A special police was reinstituted in every university for the oversight of both professors and students, in charge of an inspector directly appointed by the Ministry of the Interior. The autonomous system by which the rector and four deans were elected for three years by their colleagues was abolished, and the rector was made a Government official, appointed by the minister, with power to convoke and dissolve the university council at his pleasure, and to annul its decisions if he sees fit, and with disciplinary authority over the professors and the right to take any measures he deems proper for the maintenance of order. The character of the body of teachers is destined to be transformed by the new regulation. Henceforth no man will be eligible to a professorship unless he has served three years in the subordinate capacity of a tutor, and he can only be appointed a tutor on the nomination of the curator of the province, who is a high functionary of the ministry. A tutor can be dismissed by the curator if the rector or the police spies detect anything suspicious in his lectures or his conduct. The fees the students have to pay are increased 50 per cent. The introduction of tutors or *privat-docenten*, a German institution, which was chosen as the means of obtaining a class of professors that should be entirely subservient to the bureaucracy, was praised in the official press as an important improvement, calculated to raise the character of university instruction to the German level. The effect of making the rector a Government functionary and placing the faculties under official superintendence can be inferred from the riot at Kiev on September 20. On the occasion of the fiftieth anniversary of the founding of the university a *commers* and a ball were planned. Ill feeling was excited by the refusal of the rector to allow a committee of students to take part in arranging the festival. The protests and complaints of the students impelled the university authorities to omit the supper, then to limit the admissions of students to the ball to 300, and finally to recall these 300 tickets. When the festival took place, the students assembled on the streets, shouted and sang, and threw stones at the windows, and then dispersed after breaking up the feast before the arrival of Cossacks. A students' demonstration took place at Moscow, October 14, but was promptly suppressed and the ringleaders arrested. It was partly directed against the newspaper of Katkov, which is held to be largely responsible for the new university regulations and other reactionary measures.

In 1864 primary education, which previously had but a nominal existence, was confined to the Zemstvo and other local bodies in conjunction with the local ecclesiastical and Government authorities. The bishops and *tchinovniks* neglected their functions, and did not exercise the restraining influence that was expected, while the Zemstvo entered with enthusiasm into the work, and were only hindered by the lack of funds, for the expenditures were limited to 5 per cent. of the national revenues. In 1884 the schools had increased in twenty years from 17,168, with 598,121 pupils, to about 25,000, with 1,000,000 pupils. The Zemstvo started normal schools to supply a body of educated and trained teachers in the place of the sacristans, choristers, and old soldiers formerly employed. The annual cost of the primary schools is about 7,250,000 rubles, of which the peasants pay 41, the Zemstvos 34, the Government 14, and the great proprietors and other private persons 11 per cent. By the regulations of 1874 the teachers have been placed under a system of police inspection, and are liable to be dismissed on the complaint of any of their neighbors that secretly report to the school inspectors a suspicion that they instill seditious sentiments into the minds of the children. In August, 1884, was promulgated a law that placed primary education under the exclusive control of the clergy, in order to preserve the instruction of children from all revolutionary taint, and imbue their minds with the principles of fidelity to authority and respect for religion. All the parochial schools are to be conducted by the orthodox clergy at the expense of the parishes, with or without subsidies from the communes and the Zemstvo, with the aid of wealthy "right-thinking" persons and the diocesan funds and liberal subsidies from the state. The course of instruction will be two years or four years, and will be confined to prayers, sacred history, the liturgy, reading, writing, and arithmetic, with the addition in the longer course of the history of Russia and of the Greek Church. All schools other than parochial schools are also placed under the direction of the ecclesiastical authorities. The general superintendence of the teaching and the choice of books are intrusted to the Holy Synod. The teachers are to be priests and deacons, or, if they have not the time, masters chosen by the archbishop, preference being given to former students in the ecclesiastical seminaries, who shall act under the direction of the parson of the parish.

Religious Coercion.—Religious tyranny is in Russia the invariable concomitant of political reaction. Since the fall of Loris Melikoff, the Orthodox priesthood have been given free scope for their repressive and proselyting designs. They not only persecute the sectaries unmercifully, but their treatment of the Uniate Catholics, though legal, is an offense to the Roman Catholic Church. Strigoun, a well-known leader of the Stundists, was sentenced to three and a half years' imprisonment on *ex parte* evidence procured by the village priest, for declaring prayers made before the holy pictures in the Orthodox Church to be idolatry, a remark which, supported by several witnesses, he denied having uttered. For heading a deputation to the Pope, requesting mediation on behalf of the Uniate Catholics, a Polish land-owner was banished for three years by administrative order. Severe measures were taken against the Polish Uniates, who were visited by a superior official connected with the Ministry of the Interior in December. At Bordzilovka the churches were closed and the priests arrested. A priest was deported to Astrakhan for celebrating rites of marriage, burial, and baptism. The Uniates persist in refusing to conform to the Greek Church, notwithstanding this stringent system of repression. They let their children go without baptism, and bury their dead in the fields and forests. Some of their priests evade the vigilance of the Orthodox priests and go about in disguise from village to village, holding meetings and exhorting. The propagandism of the state religion in the Baltic provinces is carried on on a large scale. A magnificent church of the Orthodox rite was consecrated at Riga in the autumn. The Lettes and Esthonians continue to join the Russian Church in large numbers, and earnest efforts are made to convert the German Lutherans.

The relations with the Vatican greatly improved during the pontificate of Leo XIII. Since the arrangement of a *modus vivendi* in 1883, the Polish bishops have displayed a more conciliatory and loyal disposition. The renewed persecution of the Uniate Catholics again disturbed the relations with the Curia. A deputation of Polish Catholics laid before the Pope a petition with 9,500 signatures on behalf of the Uniates. Pope Leo promised to forward the petition to the Czar, and to intercede for the oppressed Catholics. The Russian envoy had been recalled from Rome, and all negotiations broken off several months before, on account of the attitude of the Vatican in this matter. This interruption of friendly relations caused the Russian Government to leave in force the regulations relating to the acquirement of lands by Russians in the old Polish provinces, which have been one of the main Polish grievances since the rebellion.

Nihilists.—The revolutionists were generally quiet in 1884. Arrests took place more frequently than before, and a great number of persons of respectable position, many of them of official rank, were imprisoned. About seventy-five officers of the army were arrested at one time for holding socialist opinions. The Government decided, in consequence, to create a military commission, under the presidency of the Grand Duke Nicholas, charged with preventing the propagation of socialism in the army. The suggestions of the Grand Duke were of so rigorous a nature that they failed to obtain the approval of the chief of police. In Odessa a series of political assassinations occurred, beginning with that of Colonel Strielnikoff. On June 22 Captain Gezhdy was murdered by his man-servant and a woman. On August 19 Mary Kaloojny, the daughter of a merchant, a young woman of nineteen, who had joined the Terrorists after the deportation of her brother in 1879 and had been a companion of Dagaïeff, attempted to shoot Captain Katansky, of the Odessa police. After her release from a ten months' imprisonment she earned a miserable living by teaching, until the tormenting supervision of the police goaded her to the desperate act. In October, the trial of fourteen Nihilists took place in St. Petersburg in secret, before a tribunal composed of army officers. The principal culprit was Colonel Aschenbrenner, commander of a regiment in the south of Russia, who was one of the chief propagandists in the army, and was a kind of inspector for the party. Another was the beautiful and talented Vera Figner, who has been a leading spirit in nearly every plot since 1878. In the Caucasus and elsewhere she has been exceedingly active and successful in spreading Nihilism among the troops. Two other women, two sons of priests, two sons of merchants, a nobleman, and five other officers were the other persons tried. The officers were a staff captain of artillery, two naval lieutenants, and two lieutenants of the army. The women Figner and Wolkenstein, and the six officers were condemned to death, and the others to hard labor in Siberia. Their crimes date back to the beginning of terrorism in 1875 and 1876. Figner took part in the first serious demonstration before the Kazan cathedral. After the murder of the Czar she offered shelter to Soukhanoff and Perovsky. The two naval lieutenants were friends of Soukhanoff. Colonel Aschenbrenner started a military circle at Nikolaiev in 1882. The other officers organized military and naval revolutionary circles in St. Petersburg, Cronstadt, and Helsingfors. The capital sentence was executed only on the naval lieutenant, Baron Stromberg, and the artillery lieutenant, Rogatcheff. The sentences of Vera Figner, and of Aschenbrenner, Captain Poknitonoff, and Lieutenant Tikhonovich, were commuted to hard labor for life in Siberia; and those of Wolkenstein and the other officer to hard labor for fifteen years. Mary Kaloojny was tried at Odessa, in September, for her attempt on the life of the chief of the Odessa gendarmes, and was sentenced to twenty years' incarceration in the Castle of Schlüsselburg, in the dungeons of which political prisoners are now usually confined. In the early summer a rigorous search was instituted in Warsaw, Lodz, and other manufacturing towns of Poland, which resulted in the arrest of a large number of workmen. In September, in consequence of the disturbance at the University of Kiev, there were one hundred and sixty-eight students arrested on the charge of being connected with the Nihilists. The university was closed until January, 1885, and no student was permitted to enter any other university. In Warsaw twenty students, most of them sons of government officials, and a number of girls of good families, were arrested as Nihilists the same month. In St. Petersburg, bombs and documents describing an intended plot were discovered in a lodging-house and the inmates apprehended. Lapatin, one of the leaders of the party, was captured on the Newski Prospect, charged with complicity in the murder of General Mesenzeff. A great number of arrests that never transpired were made during the year in all parts of the empire, and many prisoners were dealt with by secret trial, or by administrative order, without publicity. On December 12 a batch of fifty recently arrested Nihilists were sent to the Schlüsselburg fortress.

Anti-Jewish Excesses. — At Nijni-Novgorod, just before the opening of the fair in June, from 2,000 to 3,000 laborers attacked the Jews in the suburb of Kunarvin, killing nine and wounding twelve. Six houses were razed to the ground and all the others were pillaged, and all the Jewish property in the village destroyed. The Cossacks and police had great difficulty in dispersing the rioters, who threw sand in the eyes of horses and men. Nijni-Novgorod is outside the limits assigned by law for Hebrew habitation, and the thirteen families plundered and bereaved resided there by special permission. The riot was started by a woman, who saw a Jewess take a child, that had fallen into a ditch, into the meeting-house to warm, and who started the cry that a Christian child had been kidnapped for another sacrificial murder.

The Czar at Warsaw and Skiernievice.—In September the Czar made a visit to Poland, winding up with the interview of the three emperors at Skiernievice, an imperial hunting-castle south of Warsaw. The visit to Warsaw was the gloomiest festivity known to modern history. The whole line of railroad and the royal train were searched and guarded. Before the entrance into Warsaw, the streets through which the Czar would pass were thoroughly examined and the private houses taken possession of by the police. Every person whose loyalty was not indubitable was removed. The citadel was crowded with political suspects. The Emperor passed between rows of bayonets to the Roman Catholic Cathedral. The instructions to the police were issued by the Okhrana, or special body-guard of the Czar. The city was decked with bunting and other festal adornments, yet all was arranged by police orders, without the slightest popular participation. At the ball, where the Czar and Czarina were ostensibly welcomed by the leading society of Poland, not a single Pole appeared who was not connected with the civil or military service. The police precautions were taken partly upon suggestions from the Berlin police, who are said to have given warning of every important plot that has transpired in Russia. At the village of Skiernievice the police measures were as thorough as at Warsaw, though so carefully disguised that wherever the Emperor and his court appeared there was no sign of constraint or of extraordinary vigilance. The meeting at Skiernievice signified the solemn confirmation of friendly relations between Russia and the German powers, the termination of the tension between Russia and Austria, arising from their rival interests in the Balkan Peninsula, and aggravated by political intrigues and a newspaper war. One of the results of the negotiations with the allied German powers was the final conclusion of a convention that enables the Russian Government to reach and repress the exiled revolutionists who lay plots and carry on the propaganda in Russia from countries having easy communication with the Muscovite dominions. Thousands of Russians were driven out of Berlin, and sufficient pressure was brought upon Switzerland to force the Federal authorities to expel the Russian schemers of revolution from their former foreign headquarters.

Russian Turkistan.—A special commission, presided over by Count Ignatieff, elaborated a plan for the reorganization of the Central Asian province. The strategical points are to be changed, the routes of communication altered, and Gen. Tchernaieff's new route from the Caspian Sea through the Ust Urt Desert to Kungrad opened up, the systems of irrigation improved, railroads constructed, trading-stations established, colonists brought in from central Russia, the land laws reformed, the natives educated in agriculture, and the general laws of the empire introduced. Russian Turkistan, since the retrocession of Kuldja to China, and the transfer of Semirechensk to the Steppe, comprises only the four provinces of Syr Daria, Amu Daria, Ferghana, and Zarafshan. The region is almost rainless for eight months in the year. One half of the surface is desert and the rest nearly all steppe, the fruitful cultivated valleys constituting only 2 per cent. of it. Yet there has been great improvement in the economic condition of the country since the advent of the Russians about 1867. In eleven years the population was increased threefold by the annexation of new districts, and their colonization from Russia and the neighboring khanates. A great number of the Tartar inhabitants have been won from their nomadic habits. In 1867 the nomads constituted 70 or 80 per cent. of the population, and in 1877 only 58 per cent. The number of inhabitants in the towns is 373,000, the settled population outside the towns 1,247,000, the nomadic population 1,417,000. There are 60,000 Christians and 3,000 Jews settled in the country. The European quarter of Tashkend resembles a Russian city. It is in contemplation to change the capital to Samarcand. Russian trade with Central Asia has not thriven as well as was expected. In 1872 Russian goods of the value of $7,000,000 were imported into Turkistan, which sent to Russia its products to the value of $3,250,000; in 1881 the imports from Russia amounted to $6,500,000, and the exports to Russia were $15,500,000 in value. English goods compete successfully with Russian in Bokhara, Ferghana, and Samarcand. In June Gen. Rosenbach succeeded Gen. Tchernaieff as Governor-General of Turkistan. In the autumn Kungrad, on the Oxus, in the northern part of Khiva, the seaport of the khanate on the Sea of Aral and the terminus of the proposed new route across the Ust Urt plateau, was occupied by Russian troops on the ground of violations by the Khan of the treaty of 1873 and of his general misrule. The Khan Seid Mohammed, since his defeat by Gen. Kaufmann in 1873, has often begged his conquerors to relieve him of the responsibilities of government. The Russians not only compelled him to abandon the warlike and predatory practices that were the source of his greatness, but dictated his internal policy and required him to carry out difficult reforms in preparation for the final absorption of the khanate in the Russian dominions. The protests of England and the trouble with the Tekke Turcomans, which the Khan was expected to settle in addition to his other tasks, delayed this consummation. Now that all difficulties are out of the way, the Russian Government contemplates speedily assuming the administration of the khanate, and assigning Seid Mohammed a pension. The same fate awaits Bokhara, which has gravitated toward Russia more rapidly, though the more satisfactory native administration, and the peaceable and industrious character of its inhabitants, render interference less justifiable. In that event, unless the Oxus is defined by the firmest treaty sanction as the northern boundary of Afghanistan, fresh Afghan difficulties will ensue, because the northern slopes of the Hindu Kush are largely inhabited by people of the Turco-Tartar race, who pay allegiance to the Khan of Bokhara rather than to the Ameer of Cabul.

Annexations on the Afghan Border.—The incorporation of the oasis of Merv, the ancient and famous stronghold of the Turcomans, in the Russian dominions, was only a question of time after the conquest of the Akhal Tekke district. The chiefs that were in favor of resistance to the end have nearly all of them died since the battle of Geok Tepe, while the Russians found means of building up a strong friendly party among the Mervites. The reports brought back by the Asiatic chiefs who assisted at the Czar's coronation of the greatness of the Russian Empire, convinced the main body of the Tekke tribe of the hopelessness of contending against the power of the White Czar. They accepted the good offices of the Khan of Khiva, and in March the chiefs of the tribe tendered their formal submission. This result was not attained without a struggle between the Russian force of 2,000 men under Colonel Alikhanoff, which came to take formal possession, and the recalcitrant Mervli chiefs. The Russians withdrew the military force after concluding a convention with the heads of the tribe. On the night of March 11 enemies were encountered at Karib Ata. There was another skirmish with the inhabitants of Abdal Topas on the following day. The hostile Mervli attacked them on the night of the 14th. On the 16th they entered Merv and occupied the fortress. The Merve Tekkes in their convention promised to allow Russian officers and merchants to reside among them, to do all they can to render secure the routes between the Oxus and the Tejend, and to accept the duties of Russian subjects by paying taxes or furnishing a military contingent. A small section who were opposed to the surrender emigrated southward to join the Sarik Turcomans. When short of food during their migrations they committed raids on Persian territory in the neighborhood of Meshed. The value of this new addition to the empire does not consist in the strategical importance of Merv, as was formerly affirmed by English writers, for it lies away from the route to India. It was an achievement of high military importance, however, with reference to an advance on India, to turn this warlike clan that was a formidable barrier between the Russians and Afghanistan into allies. The immediate benefit of the acquisition was in opening up to Russian trade the whole country as far as the Tejend, and giving the Russians commercial access to the neighboring parts of Persia, to Afghanistan, and even India. For the entire security of the route from the Oxus to the Tejend, and the acquisition of a straighter route, and one running through a better supplied country, and more advantageous for a future railroad, it was desirable to bring into subjection the Sarik Turcomans, to occupy the important position of Sarakhs, and to obtain the cession of districts that are unquestionably subject to the Shah of Persia. The Persians acquiesced in a new delimitation, which gave Russia another small slice of territory nominally Persian, and a formal right to Old Sarakhs, yet set their faces against the important cessions that the Russians desired, and for which they offered compensation. Sarakhs is a small Persian town on the Heri Rud. Directly opposite is the site of the once important city and stronghold bearing that name. The Russians occupied Old Sarakhs in the summer, fortified the hill on which it is situated, and established a large garrison. Russian merchants followed the military, and very soon this new terminus of their caravan route became the busy center of a trade that extended into Persia, Afghanistan, and throughout the Turcoman country. The Sarik clan, the last independent remnant of the Turcomans of the steppes, eventually joined their brothers, who found the life of peaceful herdsmen with a profitable market for their products not less satisfactory than the pursuits of kidnapping and robbery, which they were no longer at liberty to follow, and accepted the sovereign protection of the Great White Czar. When Prince Dondoukoff Korsakoff reached Askabad in the spring, he found a deputation representing the great body of the Sarik Turcomans, who formally took the oath of allegiance. The Sarik tribes will be exempt from taxation for the present, but must maintain a force of constabulary, and carry out works of irrigation, at their own cost. Trials for treason, rebellion, murder, and robbery will be conducted under Russian laws. The extension of the Transcaspian Railroad from Kizil Arvat to Askabad was announced by Prince Dondoukoff Korsakoff when he visited Central Asia. Askabad is 380 miles from Herat, 184 miles nearer than Quetta, the terminal point of the English strategic railroad.

Relations with England.—The voluntary submission of the Merv Turcomans in the spring excited the susceptibilities of the English. The Tories declared their fears and suspicions, and the old controversy over the Afghan policy of the Government was brought up again, yet no decided stand was taken, because Egyptian affairs engrossed public attention. The responsible ministers professed satisfaction, recognized the necessity the Russians experienced of subduing and absorbing the robber tribes on their border, and praised their services in suppressing slavery in central Asia. Nevertheless, they showed an anxiety that had little in common with the Russophile sentiments of Gladstone in opposition, when he welcomed the neighborhood of a civilized power in Asia. While the Russians pushed on their outposts to Old Sarakhs, the Liberal Government adopted the Tory project of a strategic railroad to Quetta, massed troops at the Bolan Pass, established an elaborate civil administration in the Quetta district, sent a formidable punitive expedition against disorderly tribes in southern Afghanistan in order to revive English prestige, and supplied their paid allies in Cabul and Candahar with fresh gifts of arms and money. They opened negotiations with the Russian Government for a delimitation of the Afghan frontier, in order to hold Russia to a definite line in the observance of her engagements not to enter the dominions of the Afghan Ameers. Preliminary negotiations were begun about eighteen months before, but were discontinued by the English themselves. The St. Petersburg authorities agreed to an international commission for the delimitation of the boundary for the satisfaction of England, though a technical demarkation was out of the question in the absence of any definite exercise of authority by the Cabul Ameers in that region, or even of a geographical knowledge of the country. Sir Peter Lumsden, the English commissioner, set out from England for Afghanistan by way of Persia, while a numerous staff of civil and military assistants with a large escort advanced to meet him from India. The Russians were determined to claim all the level country inhabited by the roving Turcomans up to the foot of the Parapamisus hills. The English wished to preserve the line that they have put down on the maps as the boundary of Afghanistan. They were particularly anxious about the frontier in the neighborhood of Herat. Penjdeh, on the Murgab, is an important strategic point, which commands the approach to Herat. The English, in order to secure the last defense to the "key of India," instigated the Ameer of Cabul to occupy this place with a military force before proceeding to the delimitation. From the time when the Russians annexed Merv, the Afghan rulers began to concentrate military forces in the Herat province, and to coerce the independent Uzbek and Turcoman tribes. Penjdeh and the upper valley of the Murgab were occupied by the forces of the Ameer in March. But Penjdeh is a Turcoman town, and the Russian Government, which had an army of 85,000 men in Turkistan, could not permit its new subjects to be despoiled. When Sir Peter Lumsden arrived, he found no Russian commissioner there to meet him. While he was waiting on the Heri Rud for his colleague, M. Lessar, who had not yet left St. Petersburg, the Russian military commander advanced his outposts to the important strategical points of Pul-i-Khatum and Pul-i-Khista within what is colored on the maps as Afghan territory. The British Government demanded explanations, and finally addressed an ultimatum to the Russian Government, calling for the withdrawal of the Russian troops beyond Sarakhs, pending the result of the boundary commission. The Russians refused, and both countries prepared for war. They declared that they had not violated their agreement, had not invaded Afghanistan, but that the Afghans were aggressors, and demanded the evacuation of Penjdeh.

Difficulties with China.—The ascendency of the war party in China caused trouble in the relations between Russia and the Celestial Empire. The demarkation of the frontier line in Kuldja was duly arranged in a protocol signed by Chinese plenipotentiaries in May. The treaty of Kuldja was openly violated, however, by the Chinese authorities, who prevented the Mussulmans that had elected Russian allegiance from trading in the Chinese frontier towns with the exception of Kashgar. The Russian Government addressed representations to Peking, which were answered by the local authorities with a command that all Russian Mussulmans should quit the Chinese towns at a fortnight's notice. Heavy duties that were placed by the Russian Ministry of Finance on teas coming across the border were removed because the Chinese refused to trade altogether. Russia had 9,000 infantry, 4,000 cavalry, and 8 batteries on the Amour, and about 18,000 infantry, 9,000 Cossacks, and 48 mountain and mounted batteries in Kuldja.

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SALVADOR, a republic of Central America; area, 18,720 square kilometres; population, 553,882. The capital is San Salvador; population, 13,274.

Government.—The President is Dr. Rafael Zaldivar y Lazo (elected in May, 1876, re-elected Dec. 22, 1883). The Cabinet was formed of the following ministers: Foreign Affairs and Justice, Señor S. Gallegos; War and Finance, Señor P. Melendez; Public Instruction, Señor D. Lopez. During the President's eight months' trip to the United States and Europe, the President of the National Assembly, Señor Angel Guirola, filled the presidential chair.

President Zaldivar arrived in New York in April, went to Paris and Madrid, and returned *via* New York to his country in July, arriving there on August 17. In September there was an interview between him and the Presidents of Guatemala and Honduras at Montaguay, on the southern frontier of Guatemala, on the subject of their interstate relations.

Finance.—The condition of the finances is shown in the following:

	1881.	1882.	1883.
Receipts	$3,952,000	$4,549,280	$4,061,821
Expenditures	3,827,000	4,416,454	4,001,954

The details of income and outlay in 1883 were:

REVENUE.

From customs	$1,455,300
Spirit and powder monopolies	1,004,400
Stamp-tax	84,000
Post-Office and telegraphs	33,800
Sundry items of income	1,478,800
Total	$4,061,800

EXPENDITURE.

Civil list of President	$15,800
Assembly	19,200
Foreign Department	142,500
Department of Justice and Public Instruction	192,700
Department of the Interior and Finance	1,263,100
Department of War and Navy	583,100
Other expenditure	1,785,600
Total	$4,002,000

The low price of coffee and indigo, the chief products of the republic, caused a serious falling off in the revenues, compelling economy and the exercise of the greatest vigilance on the frontier, and at La Union, to prevent smuggling. Still, the scarcity of specie became so great that in January, 1885, several merchants' firms had to suspend payment. Simultaneously a great scandal occurred at La Union, where several customs employés were cashiered for conniving in a smuggling operation. Upward of $100,000 worth of goods passed free.

In September a new bank was founded, the Banco Anglo-Salvadoreno, with a capital of £500,000 in shares of £10; £200,000 to be paid up on subscription. The President of the Republic, and San Salvador and Santa Tecla capitalists, on September 15, immediately subscribed to the extent of 3,200 shares.

In January, 1885, the Union Bank lowered its rate of discount to 9 per cent., thus facilitating transactions in coffee then being gathered. The Government had meanwhile decreed the levying of an export duty on the latter of 12½ cents per quintal of 100 pounds.

Tariff.—A project was suggested to Salvador, emanating from Costa Rica, to abolish all interstate duties in Central America, as at present subsisting between Costa Rica and Nicaragua, the duty mutually collected by the remaining republics being 4 per cent.

The new duty, decreed July 31, was to the effect that, dating from Nov. 1, 1884, all goods arriving by steamer, and from Jan. 1, 1885, all such arriving by sailing-vessels, were to pay 50 per cent. ad valorem, 25 per cent. payable in cash, 15 per cent. in custom-house certificates, and 10 per cent. in national-bank notes.

Resources.—An association was being formed in summer, through the initiative of Don Ramon Paez, for the cultivation of textile plants, such as the pita, piñuela, and piña de raton.

According to the details of statistical researches made by order of the Government there are in the vicinity of the towns of Comasagua, Chiltiupan, Jicalapa, Jayague, Teotepeque, Tepecoyo, and Tamanique altogether 285 planters engaged in gathering balsam, employing 312 gatherers, the number of balsam-yielding trees being 12,096, producing, in 1884, 12,611 pounds of balsam. Steps have been taken to place the indigo industry on a better footing, and introduce improved methods of treatment. The Minister of Public Works has addressed the stock-farmers of Salvador, in order to concert with them the best means of introducing approved breeds of cattle. To promote the agricultural interests of the country, the Government assumed the publication of the "Boletin de Agricultura" in May, 1884. The agricultural districts last year again suffered severely from the ravages of grasshoppers.

Communications.—The first line of railway, from the port of Acajutla to Sonsonate, was opened in July, 1882. The line from the latter place to Santa, the port of La Libertad, is being built, and, on September 22, the section from Sonsonate to Armenia was inaugurated amid great festivities. There were in operation in 1881 altogether 700 leagues of telegraph, with forty-eight offices. The "Diario Oficial," of June 18, published particulars of a contract embracing seventeen articles, stipulating the following agreement between the Government of Salvador and the Kosmos line of Hamburg ocean-steamers: The German company engages to place on the line eight steamers of at least 1,500 tons capacity, which are to touch at ports in the republic, three of them to touch between June and December, and the remaining five between January and May. One of the steamers is to make the trip direct from Hamburg, only touching in England to load cotton goods, etc., the freight not to exceed £4 10*s.* per ton on valuable goods, and £3 10*s.* on common goods. Of the remaining seven steamers four will as usual call at South American ports, and three establish communication between Central America and Valparaiso in connection with other steamers of the company keeping up communication with Europe. It is to remain optional with the company to suspend the June to December trips in the event of there not being freight enough; but the company binds itself to dispatch the other five steamers, even if but partially loaded. The company furthermore engages to reserve 300 tons for the export of Salvadorian products, taking coffee for Havre, London, Hamburg, Bremen, and Valparaiso, at £4 15*s.* per ton for Europe, and £3 for Valparaiso, with a schedule of proportionate rates for sugar, hides, cochineal, balsam, tobacco, etc.; the steamers, each trip are bound to call at Acajutla and La Libertad; at La Union only if there be freight enough. Should the Pacific Mail Steamship Company reduce its rates, the Kosmos Company binds itself not to charge a higher rate, and it furthermore engages to allow the Government an extra 25 per cent. reduction during periods when the crops have failed in Salvador, and wheat, Indian corn, and flour have to be ordered from South America. The mails between Central America and Valparaiso are to be carried free of charge.

On the other hand, the latter undertakes to subsidize the line at the fixed rate of $500 for each trip. It releases the company from the payment of all harbor dues, and promises the steamers prompt dispatch, night or day, the same as is granted Pacific Mail steamers, and, should bad weather compel the steamers to leave without delay, they are allowed to do so without clearance—the contract to be binding for one year, and any differences of interpretation arising, while in force, their decision is to be obtained through arbitration.

Commerce.—The foreign trade movement in Salvador has been of late years as follows:

	Imports.	Exports.
1880	$2,294,543	$4,273,068
1881	2,705,410	4,902,436
1882	3,170,056	5,236,050
1883	2,401,463	5,861,058

SANDWICH ISLANDS. See HAWAIIAN ISLANDS.

SANITARY SCIENCE. This is a wide subject, which has undergone a rapid development in the past few years, and any complete treatise would require volumes. But an attempt will be made in this article to discuss some of its more important branches, to show where there is most urgent need of reform, and to furnish practical hints to the general reader.

Plumbers.—Mr. Hellyer, in his book on "The Plumber and Sanitary Houses," remarks that in America the bad principles are not so thoroughly ingrained in the plumber as in England, and are therefore more easily eradicated. He complains (and his experience is large) that old plumbers do not take sufficient interest in their work to make it perfect. "They have bottled up soil-pipes, waste-pipes, and drains all their professional lifetime, or only ventilated them in a half-inch way. They have united pan-closets to D-traps ever since they used the cloth, and now they stand unmoved by the wants of the times, by the charms of Hygeia, and cry, 'What the plumber hath joined together, let no sanitary engineer pull asunder.'" On the Darwinian theory, he considers the old-fashioned plumber and his mate to have been developed from the pan water-closet and D-trap. While claiming for the English plumber greater practical skill than his American competitor, Mr. Hellyer admits his need of increased theoretical instruction, and adds that the aim of all that wish for true progress in sanitary matters should be "to educate the hand-worker." The current stories of the ignorance and the reckless performances of plumbers are not a whit beyond the truth. Hundreds of examples of their criminal carelessness might be cited, and may be duplicated any day in the contract-built houses of our large cities. There is no stupidity or mischief that an ignorant or unscrupulous plumber is not capable of committing. But, when it is considered what disadvantages plumbers have labored under, it is not strange that they are in such bad repute. Few of them have had any training other than that afforded in the public schools and what they could pick up in an ordinary shop. Of the nine hundred master-plumbers in New York city, only a small minority have served a regular apprenticeship. The earliest plumbers in America were of native stock, and, like all American mechanics, were superior craftsmen. Ship-plumbing was at first their main occupation, and was well executed. When Croton water was introduced, house-plumbing became more of a business. Some English and Scottish workmen emigrated from the old country, and the bulk of the work was performed by men trained to the business. But the trade was in its infancy; few houses had much plumbing, and the science of sanitary plumbing was not yet developed. A journeyman's skill was shown by his manual dexterity in making traps, or in lining baths or tanks with sheet-lead. Gradually machinery produced many of the articles previously made by hand, and less intelligence was required in the workman. Any novice could screw up a coupling or put in a fixture where everything had been prepared for him. Contract work then became the rule. A boy, after being but a few months in a shop and learning to wipe a joint, considered himself a full journeyman. As soon as he had saved enough to buy a kit of tools, lease a basement, and hang up a couple of wash-basins and a roll of lead pipe in the window, he began business on his own account. The demand for workmen, and the chances for slighting work, were so great, that men who had failed at every other calling became plumbers; brick-layers, gas-fitters, masons, and even shoe-makers, assumed the title, but the largest number of recruits were tinsmiths, who found it desirable to combine a knowledge of plumbing with their other work. As competition increased, there was a race to see who would do the cheapest work. The result is seen in the wretched condition of the majority of houses built within the past few years, and the consequent prevalence of sewer-gas and zymotic diseases. Really good plumbers found it useless to compete with their inferior and unscrupulous rivals, and abandoned contract work. Latterly, especially since the passage of the plumbers' registration law, a change for the better has taken place. Inferior workmen must now be content to do repairing, and there is an increasing demand for competent and trustworthy workmen. The low standard of capacity and workmanship in the trade is shown by the difficulty that boards of health meet with in having their requirements carried out, and undoubtedly if the examinations of plumbers that apply for registration were rigid, a very large proportion of the plumbing craft would either give up business or go to school and learn their trade properly. Nevertheless, the apprenticeship problem still remains unsolved. Employers are loath to bind boys as apprentices, because they do not want the trouble of teaching them, and because there is no security that they will stay with them long enough to repay the labor. Again, formal instruction is needed in those principles of chemistry and physics that underlie sanitary drainage, and this can not be acquired in a shop. There is no time for such instruction during active work, and there is no one who is qualified, or whose business it is, to give such training. Technical schools must therefore be relied upon. In several institutions, courses of instruction in sanitary plumbing are now supplied, notably at the New York Trade Schools in Sixty-first Street and First Avenue, founded by R. T. Auchmuty, and in similar institutions in Philadelphia and Chicago. There is also an advanced course in sanitary engineering at the Columbia College School of Mines; but this is intended for professional engineers. As in most other trades, the plumber needs thorough training in the principles of his calling, and to have his standard of capacity raised and his position dignified. Despite the substitution of machine for hand labor, the plumbers' work must always remain a handicraft and can never sink to a mere mechanism. Individual skill and judgment are constantly demanded, and, while the mass of the trade exhibit a low order of intelligence, the skilled plumbers have no superiors among artisans for intelligence, excepting possibly among machinists.

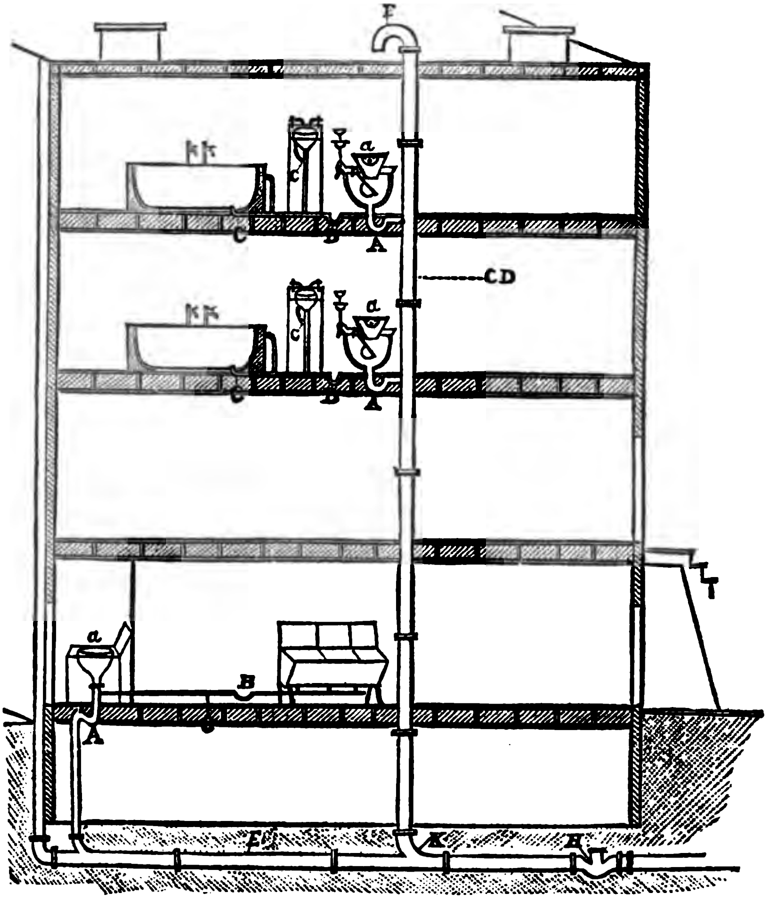
Recent Progress in Plumbing.—In none of the applied arts have greater or more rapid changes taken place than in house-plumbing.

Up to quite recent years, very few towns were sewered, and household drainage arrangements were of the most primitive kind. Erasmus's description of English domestic life in the sixteenth century shows an utter neglect of sanitary considerations, while the ravages of the black-death and other epidemics were undoubtedly due to the universal disregard of sanitary laws. The old tradition, that every cess-pool had a familiar spirit that destroyed people living near by, showed the existence and the potency for evil of what is now called sewer-gas; but it was not until the nature and composition of the gases produced from decomposing filth were understood that it was possible to provide safeguards against them. Even then, with the means of prevention at hand, it was years before measures of relief were formulated; pestilence was considered providential, and was met with prayer. Lord Palmerston's blunt refusal to appoint a fast-day when England was threatened with the cholera, and advising sanitary precautions instead, seemed almost sacrilegious to many people. The condition of the prisons, hospitals, and lunatic asylums, as revealed by John Howard and Elizabeth Fry, showed the dense ignorance and apathy of the public regarding preventive medicine. The first practical sanitarians, in the modern sense, were medical men or civil engineers, like Mr. Chadwick, Dr. Richardson, and Sir Robert Rawlinson, in England, whose chief thought was how to provide drainage and a pure water-supply for cities and towns, and to improve the public health in general. The Crimean War gave great impetus to their labors, which were still more aided by the death of Prince Albert and the serious illness of the Prince of Wales, both on account of exposure to foul cess-pool emanations. These two startling occurrences raised public attention to the consideration of household sanitation, and the cry "Look to your drains!" became proverbial.

The gist of modern plumbing practice in the United States dates back scarcely more than twenty years. Machine-made lead pipes and traps became common about 1840; cast-iron drain-pipe came into general use a few years later. Soil-pipes had been ventilated previous to 1875, but the practice did not become general until about 1880. Separate trapping of each fixture independently followed. The publication of the "Plumbing Code of the New York Board of Health," which was compiled in consultation with some of the most experienced engineers and plumbers throughout the country, had the effect of crystallizing opinion as to the essentials of good plumbing; and while some minor modifications have been made in these rules, they may be taken to-day as the standard of good practice, and their influence has been wide-spread.

As a matter of history, and to show the progress that has been made in the past few years, the accompanying plan of house-drainage, issued by the New York Board of Health in 1878, is interesting. The defects in this plan are readily seen. The main drain is carried underground, instead of being exposed to view along the cellar-wall. It has little if any pitch, and would be liable to choke up with grease. There is a trap to disconnect it from the sewer, but no air-inlet to prevent confined air and assist ventilation. Furthermore, several of the fixtures are placed too far from the waste-pipe (notably the wash-trays), whose running-trap would certainly siphon, while its contents would force foul air up into the bowl of the servants' water-closet. The horizontal waste-pipes have no fall. The two basins have no traps, but depend on the bath-trap, which would not resist siphonage, while the discharge of any of the fixtures on the upper floor would siphon the traps of the second story water-closet. Yet this plan was officially promulgated only seven years ago as exhibiting "all that is essential, and illustrating the vital principles of efficient house-drainage."

Modern plumbing practice is not mere theory, nor the result of the whim or interested invention of the plumbing craft; it is the product of the experience of hundreds of keen and watchful observers, many of them with scientific training, including not only plumbers and builders, but architects, engineers, and physicians. It has been established that drains and sewers become foul and create gases dangerous to health; that these gases will gain an entrance through leaks or flaws in case of bad workmanship; that traps can be emptied by siphonage, unless security is provided in the shape of ample ventilation; and that this ventilation must be thorough and complete.



Defects.—The three prime causes of bad plumbing have been shown to be poor materials, poor workmanship, and poor design. Examples of the first deficiency are seen in the use of wood, brick, or stone, instead of iron or tile, as material for underground drains; in employing light-weight pipes and traps, which quickly corrode and admit sewer-gas; and in utilizing soil-pipes filled with sand-holes, which may crack and leak. Poor workmanship may be due to ignorance in the workman or to the parsimony of the customer. It may be poor because of the inferior materials used, or from the neglect of the plumber to put them together securely. Defects in design are most frequently due to the unwillingness of the house-owner to pay for a thorough work, but they are also caused by the plumber's own ignorance and botching. In some cases they may be traced to amateur experimenting in sanitation. The following are some of the most common sanitary defects in ordinary dwellings, which have been chief agencies in spreading and developing diphtheria, typhoid fever, and other zymotic diseases:

Broken drains under cellar-floors, leaking foul gases to be borne up into the living-rooms of the houses, and cellar-drains connecting directly with the sewer or cess-pool, without traps or with traps whose water-seal has evaporated.

Cess-pools under houses, forming reservoirs of foul gases that can have no outlet except into the dwellings.

Foul water-closets in cellars, contributing their impurities to the furnace and household air-supply.

Refrigerator waste-pipes running direct to the sewer and poisoning the food, especially the milk.

Old lead soil-pipes corroded by gases or gnawed by rats, so as to be in a dangerous state.

Cast-iron soil-pipes full of sand-holes, which are neither gas- nor water-tight, with joints made of putty or cement, which permit the escape of foul air.

Basins and other fixtures without traps of any kind, or with traps of unsuitable shape or size, which readily siphon by their own discharge or that of some other adjacent fixture.

Soil-pipes without ventilation, breeding-places for gases, which from the absence of any trap on the main drain readily enter from the street-sewer or cess-pool.

Water-supply tanks or cisterns with overflow-pipes connecting with the sewer or with drains, and thus polluting their contents.

Pan water-closets, outwardly clean to the eye, but foul and filthy within, creating offensive odors, which commonly have a direct vent through the waste-pipes of adjoining baths and basins, while from the shortness of the water-supply they have insufficient flushing.

Materials.—The materials used by plumbers include lead, iron, brass, copper, zinc, tin, silver, earthenware, marble, and slate. Lead was formerly the principal material, but it has since been largely superseded by other ingredients. Tin, iron, shingles, and asphalt have replaced lead almost entirely for roofs, the construction of which was formerly the main occupation of plumbers, while iron, brass, and various composition-pipes have diminished the proportion of lead pipe used for carrying water. Again, iron soil-pipe has entirely superseded lead pipe in this country, and copper-lined and iron tanks are being substituted for lead-lined tanks. Under the head of plumbers' ironware may be mentioned soil- and drain-pipe, hopper water-closets, bath-tubs, sinks, tanks, and the cheaper grades of urinals and wash-basins. Brass is employed for faucets and various styles of stop-cocks and couplings, valves, plugs, etc. Copper is employed for lining tanks and boilers, and for water-closet pans, bath-tubs, sinks, bath-showers, and floats for tanks. Earthenware is largely replacing metal, especially for basins, urinals, water-closet bowls, wash-trays, sinks, and baths. Wood, which was once used for cisterns, bath-tubs, pumps, and water-mains, is now employed only for casing fixtures or for the outside of cisterns. Among other materials are slate, particularly for urinals, soapstone for wash-tubs, plate-glass for the surroundings of sinks and urinals, nickel used in plating pipes, and silver for plating faucets.

The earliest water-pipes were made of earthenware, or logs of wood; but, as they could not sustain much pressure, lead was employed, both for conveying water from aqueducts to houses and for the mains also. In Rome some street-mains were eight inches or more in diameter. These pipes were not circular, but usually pear-shaped, and were made by bending sheet-lead, usually in ten-foot lengths, so as to bring the edges together, and soldering them; sometimes with the addition of a plain strip of lead or a cap, to make a tight joint. It does not appear that the ancients understood how to join lead by burning. Their sheet-lead was very thick, and specimens that have been preserved show no signs of wear. Cast-lead pipes were also used by the ancients, and were circular in section. They usually had the name of the reigning emperor cast upon them if for public use, while those found in private dwellings bore the manufacturer's name, or the name of the house-owner. The quantity of lead used by the Romans for plumbing was enormous, as may be inferred from the statement that 18,594 one-inch lead service-pipes drew water from a single aqueduct. Not only were pipes and tanks made of lead, but it was employed for pump-barrels, cocks, and everything connected with their water-supply, except the large shut-off bronze valves in the street-mains. Archimedes, 2,100 years ago, used lead pipes to distribute water on board a large vessel that he built for Hiero, King of Syracuse, the water being forced through the pipes by means of pumps. Lead plates, cast in sand, have been used for many thousand years, both for roofing and for retaining earth and water in the hanging gardens of Babylon and other great cities of the East. In Oriental countries the practice of using lead for roofing still continues.

Traps.—There are many kinds of traps, good and bad. The majority are too small and placed too low, so as to leave a foot or two of pipe between them and the basin or other fixture, which becomes coated with slime. Many other traps are of bad form, and either siphon themselves when discharged or are siphoned when an adjoining fixture is emptied. The ordinary S-trap is as good as any, but even this should be ventilated. The different forms of D-traps are merely small cess-pools, and accumulate foulness. Large traps are always objectionable, as they are never looked after or cleaned out. If householders would abandon their illusions on the subject of traps, and pay more heed to the defects of the ordinary foul pan water-closet, they would be aiming in the right direction.

Supply-Pipes.—According to Prof. W. Ripley Nichols, who has given special attention to the effect of water on different kinds of metals, the use of lead service-pipes for the household, while generally unobjectionable in places furnished with a public supply, should be avoided where the water is drawn from a well. The alternate exposure of the metal to air and water, by the change of level in the contents of the well, often occasions rapid corrosion. As a substitute for lead in such situations, block-tin pipe presents the most advantages, being little subject to corrosion and harmless in most of its combinations, even if chemical action should take place. Next to this, tin-lined pipe, if properly made and put together, is most serviceable. Brass pipes, which might be used as suction-pipes, but rarely are, are probably acted upon by the water; but it is uncertain whether the corrosion would, with most waters, injure to an appreciable extent the quality of that which passed through it. Galvanized iron pipe, though cheap, is not durable, the zinc coating being soon corroded so as to expose the iron to rust, while the dissolved particles of zinc are carried away in the water and injure its quality, although it is doubtful whether they are absolutely poisonous. Enameled iron pipes, as found in the market, are quite as durable as the galvanized ones, and impart nothing to the water worse than a slight flavor of coal-tar, which comes from some of them while new. In Germany wrought-iron pipes, coated with magnetic oxide by the Bower-Barff process, have recently been put in for service-pipes; and if they prove durable, they would seem to be the best yet introduced.

Modern Improvements.—In ordinary dwellings these are less common in Great Britain than in the United States. Baths with hot and cold waters, found in most American town houses, are there luxuries for the few. Sewer-gas is, therefore, not so prevalent abroad as unventilated cess-pools and broken drains leaching into the soil. At the same time lead, which has always been employed abroad as a material for soil-pipes, is easily corroded by gases, or injured by the gnawing of rats, or other causes, so that baleful consequences to life and health have resulted. In 1873 Dr. Andrew Fergus, of Glasgow, first publicly drew attention to the liability of lead soil-pipe to be thus injured, and exhibited specimens of such corrosions. As a protection against this contingency, the plan was generally adopted of extending all soil-pipes upward through the roofs of buildings and leaving the ends open to the outer air, so as to give the foul gases free vent. This may be called the first and most important step of progress in modern plumbing; and while in this country lead soil-pipe is no longer used, cast-iron having been substituted, the same precaution is still taken and is made obligatory wherever laws regulating plumbing are enforced. At first these vent-pipes were made very small, it being assumed that a slight opening would permit the foul gases to escape. Even now, many plumbers are content to employ a half- or three-quarter-inch vent-pipe, when it is manifest that the friction, particularly if there are many bends, would be so great as to render it almost useless. Gas-pipe is still employed for this purpose, though it is apt to be choked by rust caused by the moisture rising from the house-drain. This moisture, when condensed, is liable to freeze and to close the end of the vent entirely, so that plumbers and engineers have gradually increased the size of the "stench-pipe" until now it is made of the full area of the soil-pipe, and in the best practice the upper end is enlarged so as to be a fourth or fifth greater. Furthermore, the end, instead of being closed by some form of cowl or cap, under the pretense of lessening the stench or keeping out rain, snow, or other obstacles, is now left wide open, the only barrier being a fine wire strainer to prevent birds from nesting in the pipe.

The second step of improvement was in the direction of trapping fixtures. At first it was thought sufficient to place a single trap on a water-closet, and to connect baths, basins, slop-sinks, and other adjacent fixtures with this trap. But it was found that foul odors were evolved from the central trap and passed through the unguarded outlets, while in case of the building settling, or the waste connections sagging, these pipes became mere "elongated cess-pools," and in themselves were sources of danger. The plan was, therefore, adopted of placing an independent trap upon each fixture, however small, and this is now the universal practice. As a further precaution, a trap was placed at the foot of each soil- and waste-pipe, to disconnect the latter from the street-sewer, or this barrier would be located at the front wall of the house. These precautions, however, failed to give complete relief. While the sewer-air was excluded from the drainage system, the traps on the house-drain accumulated grease and other foul matter, and the whole lower end of the house-drainage system became filled with stagnant and foul air, which was liable, when displaced by the discharge of any volume of fluid matter into it, to be forced out at some lower fixture. Again, the open soil-pipe at the top of the roof did not serve its intended purpose so long as there was no entrance of fresh air at its foot. An empty bottle will not ventilate itself, however large the mouth may be; two openings are indispensable for perfect ventilation. The practice was therefore introduced of carrying an air-inlet from a point just inside of the trap on the main drain, either to the level of the ground outside of the house, or by an upright pipe to the roof. A perfect circulation of air in the whole drainage system was thus obtained. The outer atmosphere being heavier than the drain-air, which was heated by steam from the kitchen-boiler and by the general warming apparatus of the house, there would be of necessity a constant draught in at the air-inlet, and thence along the house-drain and upward through the soil-pipe to the roof. Careful tests have shown that this action takes place continuously, excepting in damp, muggy weather. Even should the movement be reversed, as when a large fixture is discharged at the upper part of the soil-pipe, the air that may be forced out at the ground-level through the inlet is not of sufficient foulness to cause annoyance; while, what is very important, should a leak or break occur in the general house system of plumbing, the escaping drain-air would be so diluted by the outer atmosphere as to be rendered comparatively harmless.

The improvements thus far mentioned had solely in view the exclusion of sewer-gas from the house, and the free ventilation of drains and waste-pipes. A new difficulty remained: the siphonage of traps either by their own discharge or by the pulling action of other fixtures when emptied near by or above them. For example, if a water-closet on an upper floor is discharged, its contents, in passing downward, fill the soil-pipe like the plunger of a pump, at once pushing the air before, and creating a vacuum behind. These two influences are almost certain to unseal traps on any fixture connecting with the soil-pipe at points below, unless they are provided with separate vent-pipes. This precaution is now taken in good practice, and in addition to the open soil-pipe extended to the roof, a back air-pipe is carried from the crown or bend of each trap to the outer air. Objection is made by some sanitarians that these back air-pipes are expensive, and are liable to be choked with condensed moisture or grease; but the general experience is decidedly in favor of their use. Another important benefit is obtained from the separate ventilation of each trap, and that is a thorough circulation of air throughout the drainage system. Without this, dead ends would be formed, which would invite corrosion of the trap, and thus permit foul air to escape into living-rooms. Where there are interior water-closets or bath-rooms, it is not expensive to run a small galvanized-iron flue from the ceiling through to the roof of the house, and supply a heated current within it by means of a light kept constantly burning. Such a device will not only ventilate the closet itself, but contribute toward drawing foul air from the adjoining rooms.

These four provisions—ventilating the soil-pipe, trapping each fixture independently, trapping the main drain from the sewer or cesspool, and supplying foot ventilation with back air-pipes for each trap as a security against siphonage — may be called the essentials of modern plumbing practice. But other and later improvements have been effected, which are set forth in the sanitary codes of New York and Brooklyn. First among these is the employment of extra heavy material, such as cast-iron pipe of double weight, tarred inside and out, or of lead waste-pipes of proportionate thickness and weight, and the avoidance of tile-pipe, unless it can be properly laid under competent supervision. Second, the concentration of house-plumbing in a limited area, and as far as possible away from the living portion of the dwelling. Third, the placing of pipes so as to be always open to view or easily accessible, drains being supported along cellar-walls instead of being buried underground, and all casings to other pipes being fastened with screws instead of nails, so as to be readily removed for inspection. Fourth, the insuring that every fixture and drain shall be kept clean by thorough flushing. This necessitates a separate cistern for each water-closet and the preference of small drain-pipes, which will be cleansed by every discharge of the fixtures, rather than large pipes, which are seldom flushed, and hence remain constantly foul. Fifth, the absolute disconnection of refrigerator-wastes, tank-overflows, and safe-wastes from the house-drain, so that there is no possibility of their proving sources of contamination. Sixth, the employment of better fixtures, such as water-closets made all in one piece of porcelain, with no joints or complicated valves or other mechanism to get out of order, and baths, sinks, and other fixtures made of similar material.

Besides the ordinary ventilation of traps and soil-pipes, it is now becoming common to provide special vents to remove foul air from the receivers of water-closets and also from below the seats of such fixtures. It is claimed that the serious drawbacks of pan water-closets are neutralized by the former device; but unless the vent-pipe is large and carried in the vicinity of a heated flue, it will not prove of any practical service. As ordinarily put in, it is worse than useless, as there will be no upward movement of air in it, but very often a down draught. This vent-pipe is usually three quarters of an inch in size, and is far too small to serve any purpose. There must be two openings for ventilation, and a fresh-air inlet must be provided. In the Hellyer water-closet a two-inch vent is taken from the receiver, and if carried near a hot flue will prove useful. In the Zane and Demarest closets a vent is taken from the compartment that contains the plunger. The mistake is constantly made of connecting such vents from water-closets and urinals into the air-pipe from the traps of fixtures, thus bringing the sewer into direct connection with the house side of the trap, and thus neutralizing the latter safeguard. To ventilate below the seat of a water-closet, an annular pipe of galvanized iron is used, as shown by Mr. Philbrick. This should not connect into the chimney, or a down draught may be created, as happened in one case where the occupants of a house sent word to a plumber that the water-closet was smoking. Hoppers are now made with a vent taken from between the bowl and the trap. This is a good arrangement, provided the pipe is heated in any way, so as to promote an upward current.

In a New York hospital an attempt was made to ventilate the plumbing fixtures into a heated flue by creating a down draught through the soil-pipe, and along the main drain in the cellar, by a vent-pipe, into a chimney. The arrangement at first worked well, but after a time the drain became so choked as to prevent the passage of air into the chimney, and the draught was reversed and the foul air forced out of the plumbing fixtures into the wards.

Grease in Pipes.—Grease in pipes is a serious annoyance to domestics and housekeepers, as it constantly chokes the waste-pipes from kitchen and butler's-pantry sinks. It seems to accumulate faster in large than in small waste-pipes. It also lines the interior of all basin-drains with a slimy coating, which, if not purified by contact with a continuous current of fresh air, decomposes and throws off very offensive odors. Grease-straps on kitchen sinks are desirable adjuncts wherever the accumulation of grease is great, and where they are certain to receive proper attention and to be frequently cleansed; otherwise they are certain to become a nuisance and a possible source of offense. In large houses, hotels, or restaurants, they are very essential, and are a means of great saving in expense. A butler's-pantry waste-pipe is more liable to choke with grease than a kitchen-sink drain, as the soapy water enters it at a lower temperature than that from the kitchen, which is drawn direct from the boiler; hence a large trap is preferable on butler's-pantry sinks. Grease is mostly found in pipes that receive kitchen-waste; the urine in soil-pipes destroys the grease, or prevents its formation.

Tests for Plumbing.—There are several forms of tests for plumbing when completed, or to detect the defects in existing work. In new buildings, after the drains are laid, the lower ends can be closed with a plug, and the pipes filled with water up to a given point, say to the basement-floor. This is allowed to remain for some time, and, if the water-level is maintained at the surface, it is taken as a proof that the joints are tight. Very hot water is used in such cases, and the test is found to be reliable. Under such a trial, a drain that is apparently securely laid with well-calked joints may leak at every length. Another test, having the same object in view, is to close all openings, both above and below, in the entire drainage system, and apply pressure from an air-pump, as is common in testing gas-fittings. A third test is made with smoke, which is forced into the pipes under pressure, by means of an asphyxiator. The vapor of burning sulphur is used for this purpose, and the presence of a leak will be quickly detected. A simpler and more common method, which is frequently employed to detect sewer-gas leaks, is to pour an ounce or two of oil of peppermint, usually followed by a gallon or so of boiling water, into the upper end of a soil or waste pipe, which is then closed with a wad of cloth or paper, when the pungent vapor from the fluid will be diffused throughout the drainage system and penetrate through the minutest leaks. Oil of valerian and paraffine are also used for this purpose, and tests of this kind are constantly employed with excellent practical results.

Cess-pools.—In the case of country houses that drain into cess-pools instead of sewers, the same arrangements are made as in city dwellings, with the exception that provision must be supplied for ventilating the cess-pool and for removing its contents. Most cess-pools are not ventilated at all, and of necessity the foul air that is displaced by every discharge into them must find its way back into the house. They are the source of much illness in rural sections and in unsewered towns. The old method of constructing these "soak-pits" roughly out of boards or uncemented stone is objectionable. A leaching cess-pool is a constant source of danger; no matter how porous the soil may be, it is almost certain in time to become saturated, and will no longer absorb the sewage, while the foul odors will penetrate through the soil into adjacent dwellings. Cleaning them is expensive and annoying, and even then the filth-coated sides evolve offensive and dangerous gases. Every cess-pool should be as small as possible; it should be absolutely tight, thoroughly ventilated, and frequently emptied. The overflow should be to a point where it can do no harm. Yet, even at the best, any cess-pool is a source of danger, and should be abolished if practicable.

No tight cess-pool will permanently resist the action of frost on the brickwork and cement, while a lining of wood will rot and leak at the joints. Such receptacles are usually built by country masons, who are not skilled, and the work is often done carelessly. In time of drought, the most tightly cemented cess-pool will be apt to leach into the adjacent soil. A prominent builder of half a century's experience declares that he has never known an absolutely tight cess-pool.

Substitutes for Cess-pools.—The two most practicable substitutes for cess-pools are the earth-closet and the sub-irrigation system. The former was employed in ancient times, and in its chief features is recommended in the Mosaic creed. It was first recommended for modern use by the Rev. Mr. Moule, an Englishman, and it has been extensively introduced with excellent results. Its simplicity, economy, and convenience are readily apparent. Its features are briefly as follows: A cemented box or vault which can be readily cleaned or removed, with a supply of dry earth or sifted ashes—say a barrelful for an ordinary household—a portion of which is daily deposited over the contents of the vault. The effect of this slight covering is to deodorize the material, absorb all liquids, and render the whole innoxious, as well as to preserve its full value as manure. There is thus no waste in economy, no risk to health, and no source of offense to the senses. If the earth-closet is situated conveniently yet not too near to living-rooms, and is promptly cleaned, it is a wholesome arrangement in private dwellings. In schools or institutions, or for communities, there is chance of neglect and a consequent risk to health, while the cost of conveying the fresh earth and removing the waste material becomes a burden. The dry-earth system has been tried in certain sea-side and other summer communities, and under competent supervision has proved successful. But for settled communities the water-carriage system is by general consent considered more economical and safe. The popular impression that the waste products of a town or city are of sufficient value to pay for their removal is a mistake, and the question of drainage must always be considered from its sanitary aspect rather than with any hope of profits.

The second method of domestic drainage is what is known as the sub-irrigation system. It has been adopted to a considerable extent for draining small places in the country, and on a large scale for disposing of the sewage of towns and even cities abroad. This method consists in utilizing the absorbing powers of the soil in taking up liquid sewage, and also the oxidizing powers of the atmosphere in destroying the products of fermentation. Instead of pouring a mass of fluid matter into a pit, and saturating the ground to a point beyond absorption, the sewage is spread over a wide area by means of small pipes carried just below the surface of the ground, with their joints open to permit the contents to leach freely into the soil, while it is further absorbed by the roots of grass and oxidized by the air that penetrates the interstices of the soil. A single acre will serve to dispose of the waste products of an ordinary household. The vegetation growing on it will be benefited, and the cost of the arrangement will not greatly exceed that of building and constantly cleaning an ordinary cess-pool. Drain-pipes two inches in diameter are preferred. They are laid so as to be easily inspected, and about once in three years they may need to be taken up, cleansed of grease that may accumulate at the joints, and relaid. A prime feature of this plan is, first to convey all the drainage into a settling-tank, so as to collect the grease and to dissolve other solid materials, which are then by the automatic action of a siphon discharged in considerable volume, and the sewage distributed throughout the whole area of the branching drains. Otherwise, the discharge would be a mere dribble, and would not extend throughout the pipes, while the area of soakage would be confined to a small section. The sub-irrigation system works best in a gravelly, porous soil. Where the ground is retentive, it is desirable to provide under-drainage. Mainly through the efforts of Col. George E. Waring, this system has been widely made known and extensively adopted. In the neighborhood of Orange, N. J., about fifty houses are thus drained, while at Lenox, Mass., and at the Sherburn (Mass.) Reformatory, the system has been applied on a larger scale. So perfect is the purifying action of the soil, that it is said the foulest sewage will flow at the outer end of an irrigating pipe seemingly as pure as the best drinking-water.

Sewer-Gas.—Ordinary sewer-air contains less oxygen than the atmosphere, as some of it combines with the carbon of putrefying organic matter to form carbon dioxide. The lowest amount of oxygen reported in sewer-air, upon analysis, was 17½ parts in 100. The average amount of carbon dioxide was 2½ to 100 parts. Sulphureted hydrogen was found in inappreciable quantities, and some other gases of trifling amount. The proportion of nitrogen was about the same as in the atmosphere. Carbonic oxide is sometimes found in minute quantities, and is usually traced to leaky gas-mains (Gerhard). The ferry-boats at certain New York slips where sewers empty their contents have their copper bottoms blackened by the sulphureted hydrogen. The silver table-ware on ocean-steamers whose wharves are in this vicinity is acted upon in a like manner, and silver door-plates have shown the same effects. Sewer-gas is exceedingly penetrating; it escapes readily through the smallest openings in walls and partitions. Menzies says, "I have known it to pass through floors and through chinks in two-foot walls." It will find out the minutest crevice in a pipe that will give it a chance of getting to the heat or open air. It will readily pass through breaks in cellar ceilings where plumbing pipes are carried. Pettenkofer's experiments with ground-air show that neither brick, stone, nor concrete is a barrier to gases under heavy pressure.

The following are among the chief sources of sewer-gas:

1. Foul and unventilated sewers, usually badly constructed with rough interior surfaces, and made too large for proper flushing except in heavy rain-storms, so that the ordinary flow of sewage covers only a small portion of the surface, and the remainder becomes coated with slime, which decomposes and throws off vast volumes of foul air. A cubic ton of sewage, it is estimated, creates its own bulk of sewer-gas every twenty-four hours.
2. Tightly sealed cess-pools carefully hidden underground and filled to overflowing with putrefying filth, whose gases have no means of escape except through the house-drains connecting directly with living-rooms.
3. Small and clean sewers, which when tide-locked or gorged with rain from their deficient size, as in Brooklyn, force foul gases into houses.
4. Defective drains under or near houses, which have not proper flush or pitch, and hence become mere elongated cess-pools.
5. Soil-pipes full of sand-holes, or lead soil-pipes honeycombed by corrosion or eaten by rats.
6. Bad workmanship, as making joints with cement or putty, instead of calked molten lead.

7. Broken drains caused by houses settling, or rats undermining the ground below them.

8. Traps evaporated from neglect or non-usage, or from their nearness to furnace-flues or steam-coils.

9. Traps that are siphoned by the pulling action of other fixtures when discharged, and are thus left open to the sewer.

10. Pan water-closets, slop-sinks, and other fixtures that become foul for lack of sufficient flush and ventilation, and are in close rooms or closets without sunlight or air.

A well-constructed and properly laid sewer, if frequently flushed, and if it has a free outlet, is not productive of foul gases to any appreciable extent, especially if it is ventilated by perforated man-holes at frequent intervals. There is little perceptible odor from openings in such sewers, and the workmen employed in them do not complain of sickness. But the case is different with sewers that are too large or have not enough pitch, that are not frequently flushed, or whose outlet is tide-locked, so that they become clogged and are mere gasometers and reservoirs of liquid filth, constantly undergoing decomposition and creating foul gases, which are inevitably drawn up into our overheated houses, carrying disease and death into every occupied room. In a city in central New York, a quantity of benzine was accidentally discharged into a sewer, and as a result every dwelling in the vicinity was filled with the odor. A similar test would have a like result in most large cities, both in this country and abroad, and might awaken people to the need both of disconnecting their houses from the sewer, and of having a better quality of plumbing. In many parts of New York, when the tide presses against the sewer outlets, an offensive odor resembling cabbage-water is everywhere perceptible. Prof. Chandler well says that it would be a blessing if sewer-gas stank, so that its presence would be noticeable wherever it gained an entrance. Nature usually raises some danger-signal to warn people of the presence of evil; but in the case of sewer-gas there is often no sign to make its proximity known.

Col. Waring denies the popular theory that New York has unequaled advantages in being swept on each side by a great river. He asserts that only an insignificant portion of its sewage ever crosses the bar at Sandy Hook; but the main body of filth is distributed by the tide from Sing Sing and Throg's Neck to Coney Island, poisoning the air, strewing the shores, being consumed by fishes, and contaminating the air. Unless Manhattan Island can slip from its moorings and float out to sea twenty or thirty miles, this condition of things must continue until a better one is devised. The sewers of Boston and Philadelphia are no better than those of New York. Col. Waring describes them as being "highest at the lower end, lowest in the middle, biggest at the little end, receiving branch sewers from below, and discharging at their tops; elongated cess-pools, half filled with reeking filth, peopled with rats, and invaded by every tide; huge gasometers, manufacturing day and night a deadly aëriform poison, ever seeking to invade the houses along their course; reservoirs of liquid filth, ever oozing through the defective joints, and polluting the very earth upon which the city stands."

His report to the National Board of Health upon the sewers of Philadelphia is a startling presentation of their defects.

Size of Sewers.—There is a strong tendency at present in favor of reducing the size of sewers and substituting those that are small, oval, and well flushed in place of the monster *cloacæ* that have been popular with engineers and are found in most of our large cities. These huge tunnels soon become foul, and on account of their size are rarely flushed except during unusually heavy storms. The condition of the Philadelphia sewers is a striking commentary upon the error of building them in such proportions. The example of Memphis, where the entire house-drainage is conveyed through twelve-inch sewers, has exerted a strong influence and attracted much interest. In Norfolk, Baltimore, Cleveland, Newport, New Orleans, and other cities, smaller sewers are proposed, and on economical as well as sanitary grounds they are to be recommended. Sir Robert Rawlinson mentions as a significant fact, showing the great revolution in sanitary construction, that so late as 1850 three eminent English engineers recommended for the city of London that no main sewer should be of less size than would allow a man to enter; house-drains were to be less not than twelve inches in diameter, and a four-inch drain was thought intolerable. They recommended the flat-bottomed section as the easiest to cleanse by hand-labor. Now no engineer or sanitary authority would tolerate such large sewers. Yet the report was accepted by European engineers generally, and Paris and Brussels have sewers of tunnel-like capacity. There are sewers in London large enough for a cart to pass through, with flat bottoms and almost level gradients. The Fleet Street sewer in London is 12 feet 8 inches by 11 feet 7 inches; the Mill Creek sewer in Philadelphia is 20 feet in diameter; there is a sewer in St. Louis, nearly three miles long, which is 15 feet by 20 in section; and the largest sewer in Paris is 18 feet wide and 15 feet high. The Parisian sewers are built large, so as to be capable of constant and minute inspection. They also serve to convey lines of water, gas-pipes, and telegraph-wires. But they are not used to receive the whole sewage of the city. Since 1855 their total extent has risen from 72 to 817 miles, which is less than those of New York. A large portion of the house-drainage is not emptied into the sewers. Notwithstanding their reported perfection, the Paris sewers have not saved that city from noisome exhalations, which have caused much complaint and made necessary an enlargement of the sewer system.

Sewer-Ventilation.—It is the duty of the public authorities to ventilate the sewers, without depending upon house connections. In Frankfort, Berlin, Hamburg, and Dantzic, soil-pipes act as sewer-ventilators; but there the house-drains are properly designed and securely laid, under official supervision. Where perforated man-holes fail to dilute and render harmless the sewer-air, the fault may be traced to the inadequate number of these vents, or the needlessly foul state of the sewer due to deficient inclination, excessive size, improper form, rough materials, irregular gradients, badly devised junctions of branch inlets, favoring deposit, etc. With care on the part of the authorities, all these deficiencies may be corrected.

Many methods have been suggested for ventilating sewers, but no thoroughly satisfactory plan has been adopted, except to supply perforated man-holes at frequent intervals along each sewer, and to allow the latter to ventilate by diffusion. Every little while some wiseacre writes to the newspapers proposing an entirely new and original method of ventilating sewers by connecting them with fires in furnaces, factories, or other large buildings, so as to destroy the noxious qualities of the sewer-air. It has also been proposed to have large lamps for lighting the streets, which could be connected with shafts from the sewers, and thus the foul gases would all be consumed. Another ingenious individual has proposed to destroy these gases by electricity. The radical difficulty with all such methods is the disproportion between the means proposed and the vast area of the sewers, which cover miles of space. Such an appliance to draw out the foul gases from the sewers would need to be multiplied on a vast scale in order to produce any effect, as the draught upon one part of the sewers would tend to be neutralized by the down current through man-holes, catch-basins, and other openings into the outer air. No general plan for sewer-ventilation has yet been found. Some expedients succeed in one place, and some in another. Charcoal trays in man-holes check ventilation. Draughts by special chimneys exert an influence over a very limited district. To prove efficient, a chimney must be placed at every street corner, and a special fire maintained at great cost. Gas-burners are a still more costly device for creating a draught. If sewers and cess-pools are ventilated, the volume of foul gas will be small within them; while if the sewage is carried off at once to the outlet, there will be less chance of decomposition and a less volume of gas exhaled. To accomplish this end, sewers must be well constructed, with smooth interior surfaces and true gradients with facilities for preventing or removing deposits and for free ventilation, so that any gases will be dissipated rapidly into the outer air. By diluting sewer-air it may be rendered practically harmless.

Pressure of Sewer-Gas.—There has been considerable discussion as to whether pressure is exerted by the gases from sewers. Prof. Chandler failed to discover any evidence of such pressure in siphon-gauges that were placed upon plumbing fixtures in houses and at the School of Mines. But it is a common experience with plumbers to find very strong pressure in pipes connecting with sewers. If the temperature of the outer atmosphere is lower than that of the sewer, as in winter, there will be a strong inward current of air; but when the conditions of temperature are reversed, the outward pressure will often be great enough to extinguish a candle. Temporary wooden plugs at the ends of soil-pipes have been blown out with great force during heavy rain-storms. When sewers become gorged by storms—especially in localities like Brooklyn, where there is an enormous drainage area to be provided for—the foul air is forced out in every direction. James C. Baylis mentions seeing a miniature waterfall over a perforated man-hole in a Brooklyn street where the sewer was too small, and where the belching gases blew the water up in a continual spray. In Washington a sewer-arch was broken by the pressure of rain-water, causing great damage. In many localities it is necessary to supply security against back pressure from sewers that are tide-locked, or become gorged with rain by placing valves upon house connections. Several forms of valve can be used for this purpose. They can be inserted just as a section of pipe can be put in. The best way is to insert such a valve in the line to a drain as near the sewer as it can be accessible for opening and repair. The old form of valve intended to be placed at the end of a drain is inadmissible.

The effect of steam in sewers is becoming an important consideration. Many business establishments that employ steam-power discharge their waste steam into the sewers, though this is forbidden by law. Decomposition is thereby hastened, and the sides and top of the sewer become coated with an offensive slime, which can not be washed off excepting during heavy rainfalls. If the sewer is of brick, the mortar is decomposed and an exit made for foul gases under such pressure that they force their way into basements and cellars. The lead joints of house-plumbing connections are often blown out by the steam pressure, which will also force traps or dry out their contents. In a large dry-goods establishment in Broadway, where waste steam discharged into the soil-pipe, the pressure forced several joints, so that part of the building was flooded and damaged to the extent of several thousand dollars. Explosions of illuminating gas from leaky mains frequently occur in sewers, the gas saturating the adjacent soil and readily finding its way into the sewer. Several such explosions occurred during the construction of steam-heating mains in New York. In that city the waste of illuminating gas from leaks is from 6 to 10 per cent. A peculiar gassy odor may be noticed whenever the soil is dug up in any part of the city, and trees are often killed by the gas that percolates through the earth about their roots.

History.—Surprise is often expressed that sewer-gas has been so little heard of until within a few years. During the fifteenth century the Paris sewers were said to be infested by a basilisk, the glare of whose demon-like eyes struck dead all who dared approach him. Even medical men accepted this belief, and though many workmen in the sewers died of malaria, nothing was done to protect them. It was not until modern improvements came into general use, and our great cities were closely built up, that the effect of cess-pool air became noteworthy. Originally the amount of plumbing in ordinary dwellings was small, consisting of a pump, a cess-pool, and a cistern for holding rain-water. Later, sinks, baths, and boilers were introduced; and finally water-closets and basins came into vogue. As population increased and dwellings thickened, the old cess-pools, which were roomy and well ventilated, were replaced by smaller and tightly sealed receptacles, with the ostrich-like idea that if hidden below the ground their contents could do no harm. It was also found less convenient to empty and clean these receptacles, and hence they were frequently neglected. Public sewers were slowly introduced into New York. Up to 1849 only 72 miles were laid, against 360 miles now. Many of these sewers were merely rough drains, uncemented and open, and intended solely to carry off kitchen-waste and soiled water. When converted to receive sewage, they rapidly polluted the soil, and especially when tide-locked became mere elongated cess-pools and gasometers for creating foul odors. Under "Ring" rule, many of the sewers of New York were constructed of inferior material and imperfectly laid, with not enough grade and insufficient flush. This condition of things was supplemented by the work of the contract builder, by whom a large portion of the houses in our principal cities have been constructed. The plumbing work, being mainly hidden from view, invited these unscrupulous builders to use the cheapest material and inferior workmanship. Hence, in the average houses we find ill-laid drains, cheap fixtures, light-weight waste-pipes full of cracks and holes, and with no barrier to prevent the sewer-air from finding direct entrance into living-rooms. It is not surprising that zymotic diseases, due to sanitary defects, count so largely in the mortality returns. Millions of gallons of water are daily being wasted in consequence of leaky supply-pipes in dwellings, and according to Prof. Chandler 10,000 preventable deaths occur annually, with the usual proportion of sickness, from defects in house-drainage.

Effects on Health.—Where a sewer is clean, ventilated, and well flushed, it does not create hurtful gases. If it is laid without a proper grade, so that its contents stagnate and do not flow easily, or if it gets choked and becomes merely an "elongated cess-pool," foul gases are thrown off in great volume. Decomposition is promoted by hot water and waste steam from houses and factories. The germs of diseases are light and almost infinitesimal, so that they may be borne with the impalpable and expansive sewer-gas through the house-drain connections, along the line of the sewer, and into living-rooms. It is these germs of disease of which the sewer-gas is the vehicle that are so often the source of sickness. The fact that so large a proportion of the mortality from zymotic disease is found amid conditions more or less unsanitary, shows some connection between these conditions and the prevailing malady.

A house may be full of defective plumbing, and yet have such ample area and free circulation of air that its few inmates suffer no harm, as the poison loses its potency by diffusion. Yet the same evil conditions in a crowded tenement or boarding-house, French flat, or dwelling of the better class, filled with upholstered furniture, with the windows and doors carefully closed to exclude dust, and the atmosphere kept at a high temperature, may produce very different results. The greater number of occupants in such houses, with the excess of plumbing fixtures, tends to multiply the sources of impurity and contagion, and to create outbreaks of diphtheria and scarlet and typhoid fever which might never visit a smaller or roomier dwelling.

Dr. Fordyce Barker, President of the New York Academy of Medicine, in an address before that body, said, "None but physicians can know how general this poison is, and how positively it explains much of the disease they are called upon to treat, and the many sad deaths which follow." Dr. E. E. Marcy declares that "sewer-gas in dwellings is one of the most prolific sources of disease; I find it in every house." Dr. Willard Parker adds, "A vast amount of sickness has its origin in the influence of foul gases from sewers, carried by defective plumbing into houses, and many serious and often fatal affections, although not so originating, are aggravated and intensified by the same cause." Within three years Bagshot Park, the newly built home of the Duchess of Connaught, supposed to be perfect in its sanitary arrangements, has been found by Dr. Playfair to be reeking with sewer-gas. In the United States no less serious sanitary defects have been found in public buildings, including the White House at Washington, the Governor's residence at Albany, the Municipal Buildings in Brooklyn and Newark, and public institutions everywhere.

Sewer-gases, by lowering the vital force, prepare the constitution to receive contagion, while the same depressing influences diminish the recuperative powers of the patient. Health officer Mears, of San Francisco, where the sewers are in "a defective and disgraceful condition," remarks that every physician appreciates the difference between the case of simple pneumonia and a case of pneumonia complicated by malarial poisoning. The tendency of the one is to recovery; the other frequently terminates fatally. Dr. Willard Parker remarks that if two scarlet-fever patients are placed, the one in a house that has pure air, and the other where sewer-gases abound, it will be found that the most intelligent treatment on the part of the physician can not save the last patient, while the other may recover simply by good care and with little medicine.

The effects of sewer-gas in poisoning food and drink, especially water and milk, require special reference. Many epidemics of typhoid fever have been traced to this source. In hundreds of homes, receptacles for food are arranged in such a faulty manner as to expose their contents to cess-pool and drain air, with very serious results. It is of the utmost importance that refrigerators should be absolutely cut off from all chance of such contamination. The slime from melted ice, if allowed to putrefy in waste-pipes or traps connected with refrigerators, will alone cause very offensive odors. Milk is especially susceptible to pollution, and the utmost care should be taken with all places where it is stored. Col. Waring mentions a case where four persons were taken sick in a single day in one household, through the influence of sewer-gas, and he declares that the worst sanitary defects are found in the finest residences. In houses where certain forms of sickness prevail, foul odors from sewers or cess-pools are usually prevalent, while in many instances the relation between the defects and the sickness are positive and undeniable. Furthermore, when these defects are corrected, no further complaints of sickness were made. There are streets in New York city that are notorious for their defective sewers. Some of these are in the upper part of the city, where the sewers were laid under "Ring" rule in a negligent manner; others, in the business portion of the city, consist of rough flat stone drains, intended originally to carry off surface-water, with little if any fall and no flush, so that they are constantly foul and throwing off their gases into the neighboring office-buildings. In these locations malarial sickness constantly prevails. Hundreds of families are to-day living amid sanitary conditions that they fully understand are not wholesome, yet they are unable to improve, them because of the apathy or greed of landlords. Hence, they continue in a constant state of anxiety and dread, vainly striving to bar out the subtile foe with such feeble expedients as stopping up basin overflows, sprinkling chloride of lime, carbolic acid, and other disinfectants about plumbing fixtures, and eagerly buying every cheap device for eradicating sewer-gas. In one case, three artist sisters occupied a studio together near Madison Square. Their living-rooms were in the same building, and contained the foulest plumbing fixtures, which their constant care could not keep sweet and wholesome. All three were attacked with symptoms of blood-poisoning: one died insane; a second lingered for months and also died; and the third is a confirmed invalid. In another instance, a young married couple, returning from their wedding-tour full of health and spirits, leased a charming house in a suburban city. Almost immediately the health of the bride declined, and after weeks of illness it was discovered that the house connected directly with a foul sewer and contained scarcely a single trap. In Brooklyn, another young couple leased rooms in an elegant boarding-house on the Heights, and, after they had been there a few months, the whole household was attacked with malarial symptoms, due, as examination showed, to an old lead soil-pipe eaten through by sewer-gas. Both husband and wife have since been ill for months, and the health of the latter is shattered. Such cases might be multiplied indefinitely, yet there is no reason for their occurrence, if the public were sufficiently enlightened.

Safeguards.—In view of the risks to which householders are exposed from having their drains directly connecting with the sewer, the natural conclusion would be, to shut off the latter from the former by a suitable form of trap. This plan is approved by the best engineering authorities, both in this country and abroad, and is coming into general use. It is officially enforced by the New York and Brooklyn Boards of Health in all new buildings. Among the sanitary authorities that favor such a disconnecting trap are the eminent English engineers, Mr. Rawlinson, Baldwin Latham, Bailey Denton, Rogers Field, Dr. Parkes, author of the standard work on hygiene, Prof. Henry Robinson, S. S. Hellyer, Prof. Corfield, and Prof. Fleeming Jenkin; while in this country Edward S. Philbrick, George E. Waring, Prof. C. F. Chandler, Dr. John S. Billings, W. Paul Gerhard, and Rudolph Hering, together with most intelligent plumbers, are among its advocates. The arguments advanced in opposition to such a trap are based upon the supposition that sewers are clean, well flushed and ventilated, and free from dangerous gases. It is therefore assumed that it would be an advantage to allow the sewer to breathe through the house-drains; but, as has been shown, sewers as a rule are far from cleanly, and are forcing-houses for creating impure air, and, while the plumbing in most dwellings is so defective as to afford a ready escape for such gases into living-rooms, it seems desirable to exclude them as far as possible from the house-drains.

Recent experiments by a German physicist show that the usual direction of the currents of air in sewers is toward their outlet, or parallel with the flow of their contents; and it has therefore been argued that the risk of an inward current into houses through their connections is small. But Mr. Lindsley, engineer of the Frankfort sewers, says he found that there was a strong outward current at the upper ends of sewers. This is a further argument in favor of a trap to disconnect dwellings from sewers.

Several methods and devices have been proposed to exclude sewer-gas, which, by persistent advertising and the injudicious commendation of physicians and others, have gained popular acceptance. All arrangements that depend upon ordinary fires, which are liable to go out at times, or upon chimney-flues, as a security against sewer-gas, are to be distrusted. Again, all mechanical devices for the same end, as a substitute for water-seal traps, are objectionable. No valve can be depended on to keep its seat so as to be gas-tight, and such devices have universally failed in practice. There are several forms of non-siphoning traps, such as the Connolly, Bowers, or Cuddell, which may be recommended, but the water-seal trap, with suitable ventilation, must still be held superior to all other devices.

Utility of Traps.—Wide-spread alarm and uncertainty have been created in the popular mind by the experiments of Dr. Andrew Fergus, of Glasgow, showing the possibility of absorption and transmission of gases through a water-seal. Ammonia, when brought in contact with an ordinary water-trap, produced an alkaline reaction at the opposite side in fifteen minutes. Other gases were transmitted in a like manner, and produced their chemical effects in from one to four hours. These experiments, however, were made in a laboratory with pure gases and unventilated traps. Later tests by Dr. Carmichael, made with sewer-gases obtained from ordinary soil-pipes and drains, showed that the latter are of less potency than the gases used by Dr. Fergus, especially when diluted by ventilating the soil-pipe through the roof, and that the amount of gas passed through the water-seal is trifling and probably harmless. Furthermore, the germs of disease, which are most to be dreaded, do not pass the barrier at all. The fact that the water-seal is depended upon in all chemical laboratories and gas-works to prevent leakage, is a positive proof of its trustworthiness, and for all practical purposes an ordinary water-trap may be depended upon as an absolute security against sewer-air.

Flushing.—It has been frequently suggested that it would be advantageous to flush out drains and traps by means of a flush-tank filled with clean water, which would discharge at regular intervals. Col. Waring has adopted this plan at Memphis, where the sewers are periodically scoured throughout their entire length by the discharge of eighty Field flush-tanks. Such an arrangement is not feasible in dwellings, but the desired result may be obtained by using the improved water-closets, which discharge several gallons of water at each using, and by rain leaders. A copious and constant water-supply for flushing sewers, drains, and plumbing fixtures, is a prime essential to prevent the entrance of sewer-gas into dwellings. Half the trouble in New York city is the lack of pressure to raise water to the upper floors of houses during a large part of the day. This permits the fouling of pipes and fixtures, and the accumulation of matter that should be promptly carried off. An abundant water-supply is, therefore, required in every city, and in England it is essential by law that no water-closet should be flushed direct from the supply-pipes, but from a special cistern, to avoid the chance of polluting the drinking-supply in case of a defective valve, or when the supply is intermittent. Where, as in New York city, the water will not rise above the second story during the day, one constantly finds foul water-closets, without any means of flushing, and with the valves open, so that poisonous gases are drawn into the supply-pipes. More than one case of typhoid fever has been traced to this source.

Isolation.—Too little thought is given to the proper isolation of plumbing fixtures in dwellings. It is common to find basins in sleeping-rooms without traps, or connecting into the trap of a foul water-closet, so that the vilest stenches find free vent into these rooms. The location of bath-rooms and water-closets has much to do with preventing freezing of pipes and annoying injuries from flooding due to bursted pipes. In too many cases the least convenient room is allotted for these sanitary conveniences, because a more suitable room can be put to a more useful purpose. All central bath-rooms, dependent upon shafts for light and air, are objectionable. Every such room should open direct to the outer air.

Another reason why sanitary appliances should, as far as possible, be isolated from living-rooms, is to insure privacy. One of the strongest arguments in favor of modern plumbing over the old-fashioned out-door inconveniences is the avoidance of publicity and exposure to inclement weather, with the consequent lessened temptation to neglect hygienic considerations. An English architectural writer remarks upon this point: "The double object should be kept in view, of indicating where the necessary apartment is to be looked for, and at the same time planning it so that no one going to or coming from it need be supposed to be doing so." Care should be taken not to locate plumbing fixtures in dark corners. Sunshine invites attention to untidiness, and is in itself the best of all disinfectants. In the White model tenements in Brooklyn, and in the Central Park apartment-houses, Dr. Hamilton's plan of isolation is carried out. In the Manhattan Eye and Ear Hospital, in Park Avenue, New York, the architect, Mr. C. C. Haight, has isolated most of the plumbing fixtures by placing them in a semi-octagonal addition in the rear of the building, six stories high, the upper floor containing a tank. There are no horizontal pipes under floors, and all pipes are exposed on the walls, the water-supply pipes being of brass. The smoke-pipe from the boilers is carried up through a rectangular brick shaft, 31 by 41 inches, and the space around the smoke-stack is used as a hot-air duct to ventilate the water-closet rooms which have each a large window. The soil- and ventilating-pipes are placed inside the shaft, to which easy access is provided by large iron doors, so that there is no possibility of foul odors entering the building. At the Hospital for the Insane at Poughkeepsie, in charge of Dr. Cleveland, all of the plumbing is concentrated in towers, isolated from the rest of the building, and so arranged as to insure absolute privacy and abundant light and air.

Besides avoiding risk to health, a great saving may be made by arranging plumbing in accordance with common sense. Too often baths, basins, or other fixtures are located merely to suit individual whims. If the occupant of a house happens to like his rooms arranged in a certain way, the plumbing must be put in to suit. Hence, pipes are carried in all directions to form connections, with greatly increased damage to wood-work, etc., danger of leakage, and difficulties of access to make repairs. Good plumbers endeavor to concentrate all their work as far as possible, and to carry pipes in perpendicular lines. Long horizontal connections and isolated fixtures are avoided, and thus a great saving in material is made, and the risk of injury from leaks reduced to a minimum.

The New York Board of Health, in their official plumbing regulations, advise placing the soil and other vertical pipes in a special shaft, between or adjacent to the water-closet and the bath-room, which will serve as a ventilating shaft for both; the shaft to be at least two and a half feet square, and to extend from the cellar to the roof, and be covered by a louvered skylight. It should be accessible at every story, and have a strong grating at each floor to stand upon. Where space permits, this is a desirable arrangement.

The fears that have been excited by the declaration that an ordinary water-trap will not resist the passage of gases, are not well founded. Water-traps are the sole dependence in chemical laboratories and in all gas-works; pure gas may pass through a water-seal during laboratory experiments, but pure gas is not found in plumbing pipes and drains, and Dr. Carmichael's experiments prove that sewer-gas will not pass through an ordinary water-seal.

The safeguards against sewer-gas being pointed out, the question arises, How are these remedies to be enforced? The public need first to be enlightened upon the subject, and hence boards of health and sanitary societies should spare no pains to diffuse information adapted to popular comprehension. The newspaper-press is always ready to second such efforts, if supplied with material. Above all, the family physician should make it his duty to understand and point out to his patients when sanitary defects exist in their homes, and in a general way how to remedy them. He need not necessarily be a practical plumber, nor a sanitary engineer, but he should not be ignorant of the work of either. He, above all others, has the most influence with the public, because he is believed to be disinterested, and his advice is received with confidence. The architect no less requires to give more attention to sanitary principles, and should strive to impress upon his clients their paramount importance as compared with taste in design and decoration. In Great Britain, within a few years, sanitary protective societies have been founded for the purpose of inspecting the premises of individual members and reporting upon their sanitary defects. The parent society was founded in Edinburgh in 1879 by Prof. Fleeming Jenkin, and like organizations have since been made in Glasgow and Liverpool, and recently in London under the presidency of Prof. Huxley. The Edinburgh society attained a membership of about two hundred. A fee of one guinea (five dollars) was charged for each house-inspection—a reasonable sum, considering the small amount of plumbing in ordinary houses in that city. The proportion of defects discovered was very great, but the average expense of remedying them was not excessive, and the members have professed themselves satisfied with the results. In London, where the drainage arrangements are more extensive, a fee of two guineas is charged, and the society has had many demands upon its inspectors. Objection has been made to such organizations, by prominent sanitary engineers like Mr. Field, that they tend to cheapen professional work, and that it is not practicable to inspect a building thoroughly for so small a fee. This is a valid objection in the case of large private or public buildings, but it does not militate against the mass of ordinary dwellings. Several sanitary protective associations on the plan of those just described have been organized at Lynn, Newport, Savannah, and other places in this country. These societies have accomplished notable results through their united action toward reforming public sanitary abuses, and as the public become more enlightened there will be an increased demand for their services in the other direction. No attempt has as yet been made to establish such societies in large cities in America, where the work of sanitary inspection is now divided between the public health authorities and a few professional sanitary engineers. Even these are only found in one or two cities, though there is a growing demand for their services. Any citizen of New York, Brooklyn, Boston, or Chicago, by application to the health authorities, can have an inspection made of his premises free of charge, and a vast amount of improvement has been effected through these inspections. But there is the difficulty of getting competent inspectors to accept the small pay in most municipal departments; and furthermore, owing to the demands upon their time, these inspections can only be superficial and general. The present staff of inspectors of the New York Board of Health are required to examine several thousand buildings in the course of a year. In smaller towns and in the rural sections no facilities for sanitary inspection exist, and the plumbing-work in houses, from the difficulty of getting skilled labor, is very deficient.

Sanitary Publications.—All that have undertaken practical sanitary work have been impressed with the necessity of popular enlightenment by means of tracts, lectures, etc. In an address before the Sanitary Congress at Exeter, England, the Marquis of Salisbury said that "'educate the people' was the lesson that he earnestly hoped the Sanitary Congress would impress upon all. Having once learned their lesson, the people would soon educate the Government, Parliament, and the local authorities." Dr. Lankester says, "The comparatively little impression produced by the great staff of medical officers of health of London arises from the ignorance of the population of the laws of health." Sanitary literature is steadily growing in amount, and already embraces a large number of publications. Of these the Government reports in England, France, and Germany, and those issued by the National Board of Health and the State boards in Massachusetts, Michigan, New York, New Jersey, Connecticut, Indiana, Minnesota, Wisconsin, and Rhode Island, are of great value. The writings of Chadwick, Richardson, Rawlinson, Latham, Bailey-Denton, Waring, Philbrick, Hering, Gerhard, Bayles, and other specialists in this line, are among the leading sanitary publications; while the reports of the American Public Association, and those of the Social Science Association, contain many valuable papers on sanitary topics.

SANTO DOMINGO, a republic occupying the eastern portion of the West Indian island of that name, the western portion being Hayti. (For area, territorial division, population, etc., see "Annual Cyclopædia" for 1883.)

Government.—The President is Gen. Francisco Gregorio Billini. The Cabinet in 1884 was composed of the following ministers: Interior and Police, Gen. Federico Lithgow; Foreign Affairs, Señor Eliseo Grullon; Justice, Public Works, and Instruction, Señor José Joaquin Perez; Finance and Commerce, Señor Amabile Damiron; and War and Navy, Gen. Casimiro Nemecio de Moya. The United States Consul at the city of Santo Domingo is Mr. H. C. C. Astwood, and the Dominican Consul at New York, Mr. H. Billini.

Finances.—The home indebtedness, Jan. 1, 1884, was $3,353,365. The national indebtedness, including the repudiated Harmont St. Domingo loan, stood, on Jan. 1, 1883, as follows:

Outstanding national paper money, receivable at par for the payment of duties to the extent of 15 per cent	$2,400,000
Six per cent. Harmont loan	2,500,000
Amount due abroad, gradually being canceled by 2 per cent. on the customs duties collected	26,712
Loan, contracted with the Compañías de Crédito	465,725
Total	$5,392,437

On October 9 the Dominican Congress empowered the Executive to issue a 12 per cent. loan of $1,000,000 at 80, payable in twenty-three years, and creating a sinking fund, toward which $10,000 are to be set aside annually. This loan was negotiated with the Compañías de Crédito, and $500,000 out of the money were to extinguish a former indebtedness of the Government to the same companies as shown above, while $200,000 would accrue to the national treasury, and $100,000 be used for the purpose of stimulating and aiding immigration.

The estimate for 1883 was $979,287 of revenue, and $874,464 expenditure.

President Billini, in his message of September 1, recommended the issuing of a decree of general amnesty, and the abolition of the export duty on national products.

Immigration.—A proposition has been made the Government to procure immigrants from the Canary Islands at $20 each for men, $15 for women, and $10 for children. On the basis of this proposal, the Minister of Public Works issued a circular, laying down the conditions on which sugar-planters would be allowed to contract for laborers on their plantations. Upon arrival of the immigrants capable of doing field-labor, the planters will have to furnish them all that is necessary to install them and enable them to raise sugar-cane, which is to be paid for at the rate of $2.50 to $3 the 100 arrobes, from which the advances made them are to be deducted. Those who prefer to work for wages are to be paid six reals a day in silver. Immigrants, who choose to work for their own account, will be allotted 50 tareas of Government lands to each male settler, 100 to every family without sons, and 125 to families having boys. The Government pays the passage from the Canary Islands, and on their landing advances, to all new-comers between the ages of ten to sixty years, $4, and $2.50 for children from one to ten years, with lodging for a fortnight, and liberty to turn their labor to account as they may choose, all their implements, seeds, etc., to enter duty-free.

Abolition of Export Duties.—The Dominican Congress, on October 2, passed a bill abolishing the duty on exports, and, in compensation, raising the extra duty on imports from 6 per cent. to 8 per cent. At the same time the Executive was authorized to contract loans to cover any deficiency in the income.

Steamship Subsidy.—The Minister of Finance perfected in October a contract with the Spanish transatlantic line of steamers, to call at the capital monthly, for which service the Government pays the company a monthly subsidy of $150, the correspondence to be carried gratis.

and all Government officials to enjoy a 30 per cent. reduction on their passage.

Canal Contract.—The Minister of Public Works, toward the close of the year, made a contract with Messrs. J. L. Jimenez & Co., of Monte-Christi, for the digging of a canal leading to within twelve miles from the coast the water of Yaque river, at a point where it joins the bed of the ancient canal; the new canal to measure three miles in length, to have a width of forty feet at the surface and twenty at the bottom, with an average depth of ten feet, the compensation to be 10 per cent. of the duties the Government will collect at the port of Monte-Christi during ten years after the canal shall be ready for navigation, less 2 per cent. set aside to extinguish the foreign debt, and 1 per cent. accruing to the benefit of the Professional Institute.

National Exhibition.—The "Sociedad de Amigos del Pais" has resolved that the proposed National Exhibition shall open on Aug. 16, 1885, at the capital.

Military Academy.—A decree has been issued ordering the establishment, at the capital, of a military academy for the army and navy.

Treaties.—On June 17 the minister from the Dominican Republic at Washington submitted to Secretary of State Frelinghuysen the following list of articles he asked to be admitted free:

Palm-oil, cocoa, indigo, asphalt; sugar, not above sixteen Dutch standard; cocoa in grain (chocolate), coffee, mahogany; espinel and all woods for balusters, etc.; beef, barley, goat-skins, green; hides, green, salted, dried; also fractional parts of hides; hides of horses, asses, caoutchouc (or rubber-gum elastic), hemp and grasses for manufacture of paper-pulp, fruits; fresh lemons, oranges, pineapples, limes, bananas, mangoes etc.; lignum-vitæ, henequen and textile vegetables; cocoanuts, molasses, logwood, mora-nuts for dyeing purposes, tobacco in leaf.

In return his Government was ready to throw open the Dominican ports to the articles enumerated below:

Barrows and hand-trucks, one or two wheels; beef and pork, salted; bricks, refractory and all other kinds of brick; books, printed, unbound or bound in whole or part with paper or cloth; coal of all kinds; corn-flour; cars and carts with springs; crucibles and melting-pots of all materials and sizes; canes; knives; clocks, mantel or wall; diligences and road-carriages of all kinds and dimensions; dynamite; fire-pumps, engines and ordinary pumps, for irrigation and other purposes; fruits, fresh, dry, or preserved; fish, fresh; also mackerel and herrings; faucets; feed, dry, and straw; guano and all phosphates for agriculture; houses of wood or iron complete; bags for henequen; ice; iron and steel in rails, bars, beams, dormants, anvils, and mauls; instruments, scientific; ink, printing; lime; hydraulic locomotives; coaches and cars for railways; lithographic stones; masts and anchors for vessels, large or small; marble, in blocks and flags for pavements; tombs of ornamental construction; machines, apparatus and instruments of all kinds for industrial, agricultural, and mining purposes, sciences, arts, and professions, and any separate extra part or piece pertaining thereto; metals, precious, in bullion or in powder; money, legal, of silver or gold, United States coins; molds and patterns for the arts; naphtha; oats, in grain or straw; oars for small vessels; pens of any metal not silver or gold; plants and seeds of all kinds; petroleum, crude or in coal-oil, and other products for illuminating purposes; powder, blasting, common; quicksilver; rails or grates of iron, steel, or any other metal, with accessories for houses and fences; roof-tiles of clay or other material; sulphur; stoves, iron for cooking and other purposes; staves and headings for barrels; soda, hypophosphate; steam-engines; sewing-machines; slates for roofs and pavements; teasels of wire for all destinations; types, coats of arms, spaces, rules, vignettes and accessories for printing of all kinds; vegetables, fresh; water-pipes of all classes, materials, and dimensions; wires for telegraph; wheat-flour; window-blinds, painted or not painted; zinc, sheet, asbestos and tar-paper for roofing.

The following articles from the United States to Santo Domingo to be reduced 25 per cent. on former rates of taxes:

Tables, sofas, rocking-chairs, chairs, desks, bureaus and dressing-cases, and articles of household furniture; pianos and other musical instruments; tanned hides and all articles in which leather is the principal component.

Prior to terminating its legislative labors on October 29, the Dominican Congress ratified the treaty of amity and commerce and consular convention negotiated at Lisbon on May 1, 1883, between Portugal and Santo Domingo.

A Free Port.—On April 16 the Dominican Congress passed a bill declaring San Lorenzo a free port and port of refuge; the transit dues to be one half of one per cent. after the goods have been thirty days in port, but coal to be exempt even from this tax.

Commerce.—There entered the port of Santo Domingo City, from Jan. 1 to Sept. 1, 1883, 143 vessels, with an aggregate amount of merchandise on board invoiced at $1,223,322; the import duty collected thereon being $355,783. These paid bar duty to the amount of $2,172; wharf and warehouse dues, $3,256; foreign debt tax, $16,327; harbor dues, $20,561; and the public instruction tax, $368.

The total import into the republic by sea from Jan. 1 to June 1, 1884, was $1,422,603, distributed as follows: Santo Domingo City, $611,504; Puerto Plata, $438,784; Samaná, $91,869; Monte-Christi, $61,360; San Pedro Macoris, $199,044; and Azua, $20,042.

Export from Santo Domingo City in January, February, and March, 1884: Sugar, 91,020 quintals; molasses, 111,599 gallons; honey, 23,762 gallons; cocoa, 16,043 pounds; coffee, 27,418 pounds; wax, 36,815 pounds; mahogany, 605,000 feet; lignum-vitæ and dyewoods, 636 tons; lignum-vitæ rosin, 525 pounds; tortoise-shell, 95 pounds; hides, 1,178, and goat-skins, 240. In April, May, and June: Sugar, 118,166 quintals; molasses, 115,455 gallons; honey, 12,645 pounds; cocoa, 51,405 pounds; coffee, 230 pounds; wax, 18,610 pounds; mahogany, 98,000 feet; lignum-vitæ and dyewoods, 375 tons; lignum-vitæ rosin, 750 pounds; tortoise-shell, 15 pounds; hides, 4,965, goat-skins, 412.

American Trade.—The imports and exports to and from the United States have been:

YEAR ENDED JUNE 30.	Brown sugar.		Total imports.	Total exports.
	Pounds.			
1880..........	10,180,946	$424,581	$660,498	$962,954
1881..........	15,087,888	601,274	924,781	787,890
1882..........	16,417,888	691,287	908,060	914,004
1883..........	27,281,049	1,149,577	1,417,519	1,201,874
1884..........	32,000,578	1,292,965	1,439,853	1,294,170

SERVIA, a kingdom in eastern Europe. Complete independence was recognized in the Treaty of Berlin. The Constitution of 1869 reaffirmed succession in the family of Obrenovich, declared the responsibility of the ministers to the Assembly, and vested the legislative power in the Skuptschina, jointly with the sovereign. The Senate was transformed into a Council of State, charged with the elaboration of laws. The Skuptschina, which is elected for three years, consists of 177 members, of whom 133 are elected by the people, every tax-payer having a vote, and 44 are appointed by the King. A Great National Assembly, composed of four times the number of the ordinary, is elected to decide on constitutional questions. Servia was proclaimed a kingdom March 6, 1882.

The King, Milan I, is the fourth of the dynasty. He was born in August, 1854, and succeeded his cousin, Prince Michail, assassinated June 10, 1868. The Cabinet is composed of the following members: President of the Council, Minister of Foreign Affairs, and Minister of Finance, M. Garaschanin; Minister of the Interior, S. Novakovich; Minister of Public Works, D. Raiovich; Minister of War, Col. Petrovich; Minister of Justice, D. Marinkovich; Minister of Public Instruction and Worship, E. Popovich; Minister of Agriculture and Commerce, *ad interim*, J. Gondovich.

Area and Population.—The area of Servia is 20,850 square miles, including 4,250 square miles added by the Treaty of Berlin, from which the Turkish population has nearly all emigrated. The population was estimated at the beginning of 1884 to be 1,865,683. The number of marriages in 1883 was 21,991; of births, 76,962; of deaths, 47,181; surplus of births, 29,781. The bulk of the population are of the Servic race and the Greek Catholic religion. Belgrade, the capital, contained 36,177 inhabitants in 1883.

Finances.—The revenue is derived mainly from direct imposts. The budget for 1882–'83 makes out the receipts as 34,930,000 dinars, or francs, and the expenditures as 34,469,919 dinars. The public debt is over 100,000,000 francs, incurred for the construction of the Belgrade and Vranja Railroad, to repay the war requisitions, and lesser sums to compensate the disinherited Turkish proprietors, and repay a war debt to Russia.

The Army.—The military forces are made up of the standing army and the national army. The standing army is employed in time of peace to instruct the national army. Every Serb is obliged to serve two years. The peace effective on Jan. 1, 1888, was 12,979 officers and men. The war effective was 265,000 men.

Commerce.—The chief trade is with Austria, and the principal article of export, live hogs. The leading exports in 1882 were of the following quantities: hogs, 240,546; cattle, 19,170; sheep and goats, 60,588; skins, 1,404,541; rye, 344,813 metric quintals; other cereals, 114,810 metric quintals; dried prunes, 257,594 metric quintals; wine, 43,605 metric quintals.

Railroads.—The length of railroads in 1884 was 245 kilometres, consisting of the line from Belgrade to Nish. There was building a line from Nish to Vranja, 90 kilometres in length. The Nish and Belgrade line, built at a cost of 90,000,000 francs, was opened September 4.

Education. — The system of state education that has been introduced in Servia is exceedingly liberal. Education in the primary schools is free, and compulsory from the age of seven to that of twelve. The normal schools, *real*-schools, and gymnasiums are free and open to every boy. At the age of eighteen any Serb can, upon passing an examination, become a student in the University of Belgrade, which has faculties for science, technicology, philosophy, and law. All instruction is gratuitous, and to the sons of poor parents the state allows a stipend. For the liberal professions or the public service, young Serbs nearly always complete their education in the universities of Austria, Germany, or France. If unable to defray all their expenses, the Government aids them, and, if entirely without means, allows a student abroad 2,500 francs a year in addition to traveling expenses.

Election.—The election for the Skuptschina, which took place February 6, was attended by intense but suppressed excitement. The Radical party was crushed after the suppression of the revolt in the district between the Timok and the Morava two months before. Its leaders were driven into exile, liberty of the press and of meeting was suspended, and soldiery were posted in every district. Yet no official interference and intimidation could countervail the impression produced on the minds of the Servian farmers and herdsmen by a deficit of 8,000,000 francs which could no longer be concealed, new taxes, and fresh military burdens. The Radicals and Progressists combined to defeat the ministerial candidates, and left the Government with a minority too small to be altered by any manipulation of the returns. The Radicals obtained but a few seats, but the Progressists came out much stronger than the Government party, electing 71 members.

Change of Ministry.—Since Cristich was unable to secure a majority with the forty-four members to be nominated by the Crown, he gave way to a Progressist ministry. The King summoned M. Garashanin, who had been a member of the Pirotshanetz Cabinet, and was serving at the time as minister to Austria. The Cristich ministry announced a Government victory, and with the aid of M. Garashanin endeavored to come to a compromise with the Progressists, but on the 16th of February resigned.

Reform of Taxation.—A new system of taxation was enacted by the Skuptschina in June. The former system pressed more severely upon the poor than upon the wealthy. The new law does away with the poll-tax, and makes lands, houses, and other property liable to an income-tax. It is expected to increase the revenue 9,000,000 or 10,000,000 francs and yield in 1885 40,000,000 francs. To cover the deficit, a new loan of 40,000,000 francs was effected. The various loans it was proposed to consolidate at 5 per cent. interest. A Servian National Bank of credit and issue began business in June.

The new system of taxes divides landmarks into five classes, taxed 1, 2, 3, 4, and 8 francs per hectare respectively. Buildings are taxed from 3 to 5 per cent. of the rent. Capital, trade, and personal taxes are calculated on the net annual income. The tax on invested capital is 6, 5, or 3 per cent. on the interest, dividends, or profits, according to the percentage of the returns. Capital employed in trade or speculation is taxed at the rate of 10 francs for 2,500 francs or less, 15 francs for from 2,500 to 5,000 francs, and 3 francs for every additional thousand.

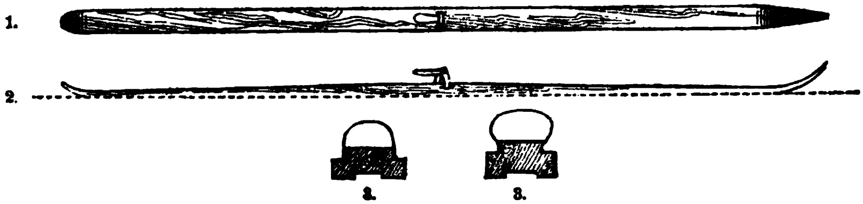
Dispute with Bulgaria.—Both Servians and Bulgarians were dissatisfied with the boundary established by the Treaty of Berlin, the former having expected Widdin and the latter Nish and Pirot. The development of Austrian sympathies in Servia was an additional cause of alienation. The Bulgarian dissatisfaction with the award of the Berlin Congress was aggravated by the military precautions taken to guard the frontier from the Servian insurgents who had taken refuge in Bulgaria. Pashich and the other exiled leaders of the late revolutionary attempt were settled in Sofia, where the ex-Metropolitan Michael also took up his residence. Two guerrilla bands appeared in the Timok district and committed various depredations directed against witnesses for the state in the treason trials. A local magistrate and three other persons were killed. The leader of one of the bands was captured, with revolutionary manifestoes of Pashich on his person. He proved to be Lazarevich, who had been convicted of high treason *in contumaciam*. About the same time a band of Montenegrins, led by the priest Luka Dshurich, another fugitive leader of the insurrection, made an attempt to enter Servia, of which warning was received from the Montenegrin Government. Suspecting a concerted design to rekindle the rebellion, the Servian Government demanded the removal of the Servian Radicals to a distant part of Bulgaria. The Bulgarian ministry, while promising to investigate the matter, made a counter-demand for the evacuation of the Servian sentry-post on the island of Bregova in the Timok. Although the island is on the Bulgarian side of the river, a Servian guard has always been stationed there. A paling running across the island marked the boundary. When, at the time of Servian independence, the Timok was first established as the boundary between Servia and Turkey, the island was a part of the mainland on the Servian side, nearly inclosed by a loop in the river. The Timok washed out a new channel across the peninsula, converting it into an island between the new bed and the marsh that marks the ancient bed. The Bulgarians followed up their claim with the forcible occupation of the disputed position (see BULGARIA). Diplomatic relations between the two countries were interrupted, and an angry spirit prevailed, especially in Servia. Through the mediation of the Cabinets of Vienna, Berlin, and St. Petersburg, which put a veto upon any hostile proceedings, the normal diplomatic condition was restored in the winter.

SKATE. (Dutch, *schaats;* French, *échasse;* Low German, *schake;* Anglo-Saxon, *sceacan, scacan.*) Skating in its modern acceptation originated so long ago, probably among the nations of northern Europe, that it may be accounted of prehistoric antiquity. References to it are of frequent occurrence in the runes and sagas of Scandinavian mythology. The derivative meaning of the word, according to Prof. Skeat, the English philologist, is "shank": from the same root other words are cited, meaning *to go swiftly*. Hence, Prof. Skeat thinks that skate originally meant something to lengthen the shank or leg, and thus facilitate swift motion. It does not appear from his etymology that he noted the fact that bones and specifically shank-bones were used by the earliest skaters of whom any record exists. Bits of bone or wood were, no doubt, the first skates, and the Dutch are credited with having first used iron. From the Netherlands the improved patterns were brought over to England as early as the twelfth or thirteenth century, and about that time skate-history begins.

James Eccleston, in his "Introduction to English Antiquities," states, but without giving his authorities, that Londoners used to skate on the Thames as early as A. D. 1216 to 1483. In a Latin work entitled "Vita Lydwine," by one Johannes Brugman (1478), there is a woodcut representing the heroine of the tale as fallen on the ice while skating. This is the earliest Dutch skating-cut known to Mr. W. M. Conway, an expert in this line.

William Carr (1688), in a work on the Government of "Germanic Sweedland and Hansiatique Towns," etc., says: "At the time when the French came to invade the territory of the States-General, such a sudden thaw (set in) as was never seen before, . . . that the French were fain to beat a disorderly retreat, . . . and the nimble Dutchmen on their scatses so long as the ice would bear them did shoot down the French." Here is an obvious reference to soldiers drilled to take the field on skates as the Swedes and Norwegians certainly did in later times, the last regiment of Norwegian Skielobere having been discontinued about 1860.

Samuel Pepys (1662) speaks of the use of "skeates" as a "very pretty art" (Griffin's memoirs of Samuel Pepys, London, 1825). In John Evelyn's memoirs (London, 1818), skating is mentioned as practiced on the Thames as early as 1662. Jonathan Swift wrote to Esther Johnson in 1711: "The canal and Rosamond's Pond are full of rabble sliding and with skates, if you know what those are." (See Foster's "Life of Jonathan Swift," London, 1875.) Evidently, in the early part of the eighteenth century skating was not familiar to the English.



NORWEGIAN SKEES OR SNOW-SKATES.—1. PLAN. 2. SIDE. 3, 3. SECTIONS AT FOOT-REST.

The first English patent for a skating invention was to J. H. Savigny, Dec. 4, 1784, since which time nearly 400 specifications have been enrolled in Great Britain, while in the United States, up to the end of January, 1885, there had been 836 patents issued for "skates" and 206 for roller-skates.

Chronologically, skating may be divided into: 1, snow-skating, namely, the use of wooden runners or "skees"; 2, blunt-skating with bones, or strips of hard wood; 3, sharp-skating, which introduces the iron or steel blade; and 4, roller-skating, where revolving wheels take the place of runners. This arrangement is, of course, to some extent guess-work, for, as has been said, the origin of snow and blunt skating dates back beyond known records, but it is not unsafe to assume that devices to facilitate travel over snow were invented before the necessarily more elaborate contrivances for traversing ice. The Scandinavian skee is sometimes referred to as a snow-shoe, but it must not be confounded with the snow-shoe of the American Indians, which is adapted for walking or running on the snow surface, not for sliding. "The Heimskringla" ("Chronicle of the Kings of Norway," date not known), by Snorri Sturluson, translated from the Icelandic by Saul Lang, London, Longmans, 1844, says: "Snow-scates are strips of light wood about five feet long, with a leather loop in the middle, into which the foot is thrust, and the expert scater shuffles along at a great rate, especially down a slope."

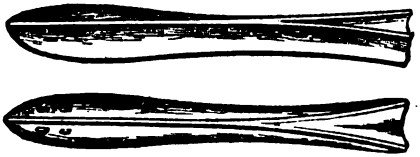
Erick Pontoppidan (1760) thus describes a Laplander: "His skates, which were made of the bark of the tree, were seven feet and a half long, four fingers broad, and flat on the bottom, . . . a large quiver at his back, and a dark [skating-staff?] in one hand and a bow in the other, and was followed by a large black cat." This Lapp easily kept up with the traveler's sledges at the alleged rate, that is, of eighteen miles an hour. "These skates," he continues, "are as broad as the foot, but six or eight feet long and pointed before. They are covered with seal-skin, so that the smooth grain of the hair turns backward toward the heels." With these snow-skates "they slide about on the snow as well as they can upon the ice, and faster than any horse can go."

It is singular that the skee has not come more generally into use in the Northern United States, for it can readily be used on good sleighing-roads as well as on a moderately firm crust, and it is said that fifty or sixty miles a day is not an uncommon feat in Sweden and Norway. So far as is known, its only general use in this country is in the California mountains, where it was introduced probably by Norwegian miners about 1849–'50, and has attained considerable popularity both for purposes of travel and as a means of recreation.

Snow-skates vary in minor details, according to individual preference. For a boy, four or five feet in length is enough, while for men they are sometimes ten or twelve feet long. The width is given from 2½ inches to 7¼ inches, and the thickness 1 inch to 1½ inch at the foot-rest, which point is usually somewhat nearer the heel than the toe, so as to cause resistance to backward slipping. The toe turns up to a height of about four inches, and the whole tapers very slightly fore and aft, coming to a point at the toe in the best-made examples, and rounded off at the heel. On top it is also beveled, and thinned to half an inch thick at toe and heel; on the under side a wide, shallow groove is cut to prevent slipping sidewise. The strap is merely a loop through which the foot is thrust as far as the ball of the great-toe, and another strap passes loosely behind the heel, so that the latter can be raised as in walking. The wood is usually cut away at the sides of the foot-rest, so that the strap will not be worn by snow and ice.

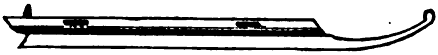
The engraving shows two different forms of cross-sections at the foot-rest, and full-length top and side views of the skee. The finest skees have a general upward curve longitudinally, but this is not essential. A staff with a sharp iron point is used for steering and to serve as a brake. With these skates it is possible to zigzag up a steep hill, coast with great rapidity, or progress rapidly on a level.

Prize snow-skating contests are held in Norway and Sweden, and the royal family frequently attend to witness the sport. One of the tests is to go over a hummock or lump on a steep hill-side, and an English visitor records a clear flight of sixty feet with a descent of thirty-six feet as having been accomplished by some of the contestants. In Sir Arthur De C. Brooke's "Winter in Lapland and Sweden" (London, 1827) there are two fine lithographs showing the Skielobere or skating regiments at drill; also portraits of mountain Laplanders on skees. The New York Geographical Society has in its collection a very beautiful pair of skees, presented by Mr. Paul du Chaillu, who brought them from Norway.

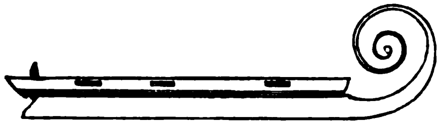


ANCIENT BONE SKATES. ELEVEN INCHES LONG, FOUND NEAR LINCOLN, ENGLAND, FASTENED WITH CORDS.

Blunt or bone skates have gone wholly out of existence, save as relics. They were used, so far as known, with the aid of a staff or pusher, and were merely the precursors of the present steel-bladed skate, whose birthplace was probably the canals of Holland.



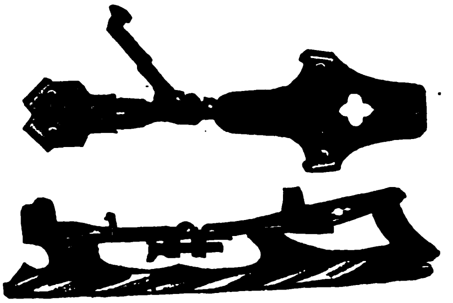
DUTCH LONG-DISTANCE SKATE (ABOUT 1840), STRAP-FASTENINGS.



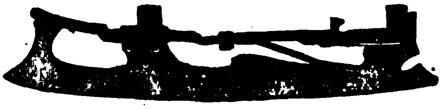
TURN-OVER SKATE (PRIOR TO 1850), STRAP-FASTENINGS.

Most of the skates of 1850 or thereabout had some kind of a projection in front, sometimes involuted, which was very dangerous, and of not the slightest use. They were often perfectly straight on the "keel," or only slightly rockered, and had frequently a longitudinal groove in the "keel" to give a keener holding edge. They were uniformly fastened with straps, which had to be drawn very tight, and often became extremely painful through checking the circulation.

In 1839-'40 an Englishman, F. L. Jeffcoats by name, invented a strapless skate, described in the London "Field," Dec. 11, 1875. This was probably the earliest instance of fastening skates by means of clamps, or similar devices, which in an improved form are now so common. These are readily adjusted by means of simple levers and thumb-screws, and are rapidly superseding all other fastenings. Some of the most popular of the skates at present in use are shown in the engraving, but new devices are continually introduced. Clamp-fastenings necessitate rather firmly fitting shoes; and it is sometimes necessary, in the case of an easy-fitting shoe, to pass a strap around foot and plate to insure firmness. Skates are now almost universally ground flat, with a very slight bevel, making the inside edge a trifle the sharper of the two.

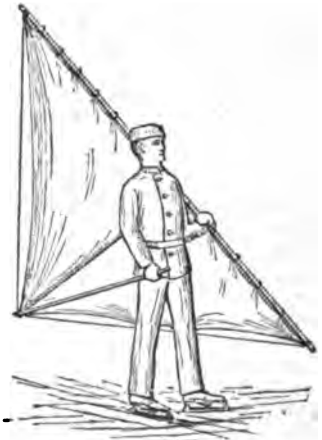


AMERICAN CLUB SKATE.



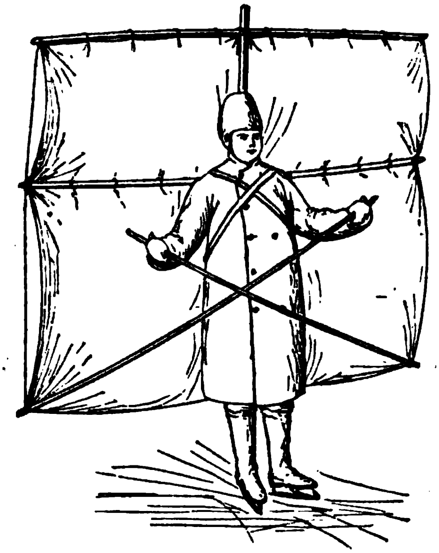
ACME CLUB SKATE.

The accomplished skater can do almost anything on ice. For figure-skating, the reader is referred to Swift & Clark's "Skater's Text-Book," sold by Peck & Snyder, New York; and for the scientific aspects of skating, to three articles on "Speed-Skating," in the London "Field," Dec. 23, 1882, Jan. 6 and Feb. 3, 1883, by F. W. Foster; and to "The Dynam-



CAPE VINCENT SKATE-SAIL.

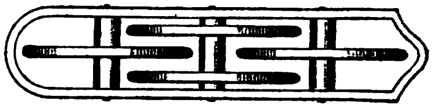
ics of Skating," in "Nature," vol. xxiii. The rate of speed of the skater is deceptive. For a short distance a fast runner can distance a first-rate skater; but the skater can keep the pace far longer, and with less effort than any runner. A mile in three minutes, or one hundred miles in twelve hours, may be taken as nearly the best possible performance for an ice-skater.



DANISH SKATE-SAIL.

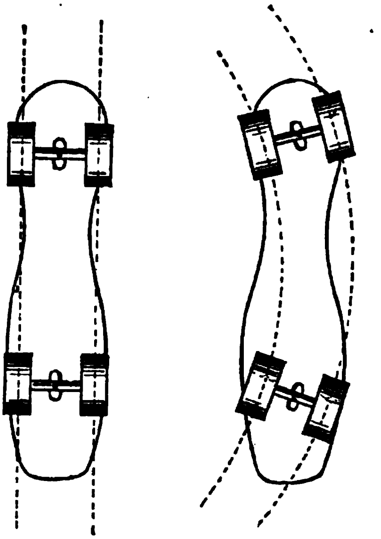
Sailing on skates may be successfully accomplished by means of small sails spread as tightly as possible on light spars. These are made in a variety of shapes, but the simplest is as shown in the cut. It is known as the "Cape Vincent" sail. Running before the wind is, of course, perfectly simple; but working to windward and tacking is an operation requiring considerable skill, practice, and address. The Danish skate-sail is a more complicated rig, but great superiority is claimed for it by those who have become skilled in its use. The sail is carried "to windward" of the skater, so that he leans against it when under way. A very high rate of speed may be attained by a skate-sailer under favorable conditions, as the same principles govern his rate of motion as in the case of ice-boats.

The earliest known roller-skate was patented in France, by one Pettitbled, in 1819. No description of this skate is extant. The next is that of Mr. Robert John Tyers, of England, in 1823. This is fully described as a single row of small wheels of slightly different sizes, so placed under a foot-plate that their lower peripheries will touch a segment of a circle (will in general effect be "rockered"). A Frenchman, Garcin by name, was next in order (1828). His invention consisted of three wheels in a single row, the middle one being the largest. It had a "stop" at the after end, and braces to run up at the sides of the leg, to relieve the strain on the ankle. Roller-skating, however, made no progress in a popular sense until 1849, when the "Prophète" was performed for the first time in the Paris Opera-House, and the skating scene was introduced with great *éclat* on roller-skates. These were undoubtedly of the Legrand patent (French, 1849), namely, four rollers fixed under a foot-plate, like some of the early English and American devices.



GIDMAN'S SKATE (1852). ENGLISH.

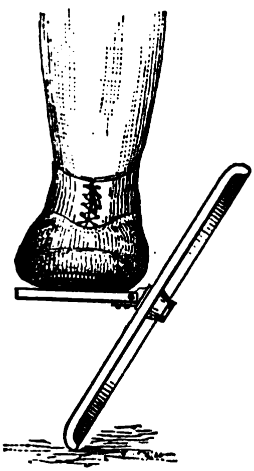
In 1852 Joseph Gidman patented a four-wheeled skate in England, two of the wheels turning on one axle under the instep, the others having each a separate axle, and the foremost one a brake to prevent backward revolution. The engraving shows the arrangement of the wheels as seen with the skate held upside down. These wheels were about six inches in diameter, an obvious advantage; but the skate never attained general use. Reuben Shaler, an American, patented a roller-skate with four wheels carrying elastic tire-bands.



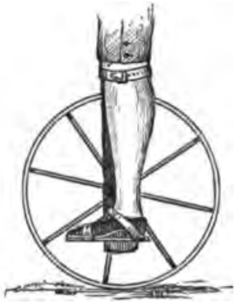
PLIMPTON'S PRINCIPLE OF ROLLER-SKATING.

In 1861 Henry Pennie, also American, took out a patent for a skate with two rows of wheels, and the same year Albert Anderson patented a device with a large front wheel; but none of these won their way to popular favor, and it was not until Mr. J. L. Plimpton's invention, patented in the United States in 1863 and in England in 1865, that roller-skating established its claims to popular favor. Mr.

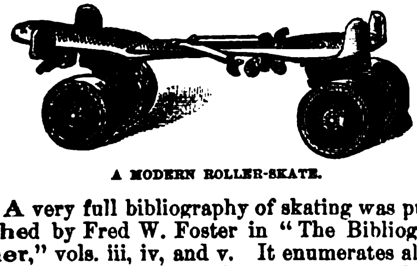
Plimpton's improvement consisted in so gearing two pairs of wheels that they would "cramp" when the foot-plate was canted to either side, and thus cause the skate to move on a curved line. Several years elapsed before the value of the invention was generally recognized; but in the mean time the inventor was busy making improvements and taking out other patents, and in 1874 had brought the skate practically to its present condition. This device of "cramping" the wheels secured the initial success of roller-skating. The pastime soon became moderately popular in New York; but the "rinking" mania first broke out in 1866 in Victoria, Australia, spreading thence to England and America, and ever since fluctuating in popularity in both countries without apparent reason. Since that time, inventions, improvements, and patents without number have been made and claimed all over the civilized world. These can not all be mentioned here, but a few of the more distinctive are illustrated to show the range which inventive genius has taken in this direction. It would seem that, with improved modern methods of construction, some of the devices for employing larger wheels might be available.



F. T. THURSTON'S DEVICE. AMERICAN. FRONT VIEW.



LUDER'S SUMMER SKATE (1869). SIDE VIEW. ENGLISH.



A MODERN ROLLER-SKATE.

A very full bibliography of skating was published by Fred W. Foster in "The Bibliographer," vols. iii, iv, and v. It enumerates altogether 350 titles, but a large number of these relate merely to detached articles or to passages in Norse or mediæval Latin literature. The following list includes most of the modern works of importance on this subject: "A System of Figure-Skating," by H. E. Vandervelt and T. M. Withan (London, 1878); "The Art of Skating," by George Anderson (London, 1873); "Practical Hand-Book on Figure-Skating" (London, 1881); "Hand-Book of Fen-Skating," by N. and A. Goodman (London, 1882); "Combined Figure-Skating," by members of the London Skating Club (London, 1833); "The Skater's Text-Book," by Frank Swift and Marvin R. Clark (New York). "Roller-Skating," by James Pycroft, and a series of articles in "Engineering," vol. xli, and in London "Field" for March and April, 1879, afford the most complete treatises extant, historical and practical, on roller-skating. Papers on skate-sailing may be found in "The Century," March, 1882, and in "Harper's Weekly," Feb. 25, 1882.

SOUTH CAROLINA. State Government.—The following were the State officers during the year: Governor, Hugh S. Thompson, Democrat; Lieutenant-Governor, John C. Sheppard; Secretary of State, James N. Lipscomb; Attorney-General, Charles Richardson Miles; State Treasurer, John Peter Richardson; Comptroller-General, William E. Stoney; Superintendent of Education, Asbury Coward; Adjutant and Inspector General, A. M. Manigault; Commissioner of Agriculture, A. P. Butler; Railroad Commissioners, W. L. Bonham, L. T. Walker, and D. P. Duncan. Judiciary, Supreme Court: Chief-Justice, W. D. Simpson; Associate Justices, Henry McIver and Samuel McGowan.

The Public Debt.—The Governor, in his message to the Legislature, says:

> The estimated amount of the public debt is almost the same as last reported, the only changes being the purchase and cancellation of $11,000 of deficiency bonds by the Sinking-Fund Commission, and the funding of $3,898 of fire-loan bonds not previously included among the outstanding securities. The whole estimated debt is as follows: Consols (valid), $5,464,656.77; deficiency bonds and stocks, $450,456.29; Agricultural College scrip, $191,800; and bonds and stock still unfunded under the act of 1873 and the amendments thereto, amounting, principal and interest, to $415,356.96; the whole aggregating $6,522,270.02. The unfunded debt, $415,356.96, includes interest unpaid from July, 1872, to January, 1880, which under act of 1878 is fundable at par, and also $624,322.72 of old bonds and stock with interest estimated to 1880, and which under act of 1878 are fundable at 50 per cent. Of this last class of bonds, notwithstanding the very large amounts still unfunded, but few are now presented for exchange, only $27,000 having been funded during the last year, and less than $60,000 in the last two years, so that it is reasonable to suppose that many of them have disappeared and will never have to be redeemed by the State. The exchange of green consols for brown consols has progressed satisfactorily, there being now but $963,872.42 of the former class outstanding, and of which $699,149.36 or 72½ per cent., is invalid. In four years the indebtedness of the counties has been decreased by very nearly $1,200,000.

Revenue and Expenses.—It is estimated that it will require $372,195 to meet the ordinary expenses of the government for the fiscal year 1884–'85, and $391,337 to pay interest on the public debt. The annual expenses of the government for State, county, and schools are about $1,800,000. The whole amount of taxes levied for the fiscal year 1883–'84 is $1,783,521, being $162,000 less than for 1882, and divided as follows: For State, $752,559; for county, $718,072; and for schools, $812,890. Of these, $1,026,241 is levied on real estate, $578,423 on personal property, and $183,857 on railroad property. The tax levy averages 11 and ⅘ mills to the county, the rate being highest in Pickens (18 mills) and lowest in Charleston (9¼ mills).

The amount of property returned for taxation for 1884 is: Real estate, $87,559,538; personal, $46,904,705; railroad, $15,268,366; total, $149,727,609. This is a loss of $881,695 on the return of 1883; personal property having fallen off by $1,345,234, while real estate has gained $428,137, and railroad property $35,402. The increase in real estate is altogether in the cities and towns, the returns of country property having decreased by about $90,000. The Comptroller-General estimates that there are at least 2,000,000 acres of land that are not upon the tax-books at all, and this estimate is sustained by the report of the Secretary of State. The taxable property of the State may fairly be estimated at about $295,000,000, instead of $150,000,000, as assessed.

Education.—There were enrolled in the public schools 84,028 white pupils, and 101,591 colored, making a total of 185,619, an increase of 12,524 pupils over the enrollment of the previous year. According to the calculations of the superintendent, this enrollment is found to be 65 per cent. of the total school population; or, stated according to race, 82⅕ per cent. of the white, and 56⅛ per cent. of the colored children were enrolled. The increase in the number of teachers is 190; in the number of schools, 213. The school fund is also increasing with the enhancement of property values. The total available school fund for 1881–'82 was $471,171.19; for 1882–'83 it was $517,937.27. The amount for 1883–'84 can not be definitely ascertained until the final accounting of the county treasurers in April, 1885.

The University of South Carolina, as at present constituted, comprises the Claflin College, for colored students, at Orangeburg; the South Carolina Military Academy, at Charleston; and the South Carolina College, at Columbia.

The Military Academy was reopened on Oct. 1, 1882, since which time it has been in active and regular operation. One hundred and thirty-eight youths are now receiving its instruction. The cadets enter into an obligation to teach for two years after graduation, in the public schools.

The South Carolina College was reorganized in 1882. The catalogue shows a total enrollment of 202 students—a number exceeded but twice in the history of the institution. Of these 202 students, 198 were natives of the State.

The annual report of the Institution for the Education of the Deaf and Dumb and the Blind shows an enrollment of seventy-six pupils. A department for colored pupils is in successful operation. The last United States census shows quite a number of deaf-mute and blind children, of school age, in every county in the State. The addition now being made to the building will enable the institution to admit and provide for a much larger number than is now in attendance. The Board of Commissioners ask for the following appropriations, viz.: For the support of the institution, $10,000; for repairs, $500; for completing and furnishing west wing, $6,000; insurance, $385; colored department, $500.

Lunatic Asylum.—The number of patients at the beginning of the last fiscal year was 603; number admitted, 293; readmitted, 5; making the whole number under treatment during the year 901. The number of inmates at the close of the year, 628, was diminished by remanding 33 imbeciles to the care of their respective county commissioners. The average number of patients was 66 more than in the year previous. The sanitary condition of the institution has been highly commended by the State Board of Health. It appears that the number of colored patients is so steadily increasing, that they will, probably, in a few years, constitute a majority of the inmates.

The census of 1880 shows that there are in the State 2,700 of the defective classes who may claim admission to the asylum, less than one-third of whom are now its inmates. The per capita cost of maintenance has been reduced from $146.54 in 1883 to 142.78 in 1884; or, deducting the amount received from pay patients, the cost to the State has fallen from $141.80 to 128.75; and of last year's appropriation, $6,828.48 remains to the credit of the institution. The estimates for the coming year, for all purposes, are less by $9,482.05 than the amount appropriated last year.

Penitentiary.—The number of convicts on October 31 was 956, an increase of 60 over the corresponding period of the previous year. Of these, 856 were colored males, 88 colored females, 60 white males, and 2 white females.

The work of completing the north wing of the prison has been pressed forward as rapidly as possible, and a large workshop similar to the one now in use is in course of erection. Until the north wing is finished it will be impossible to provide accommodations within the walls of the prison for all the convicts now undergoing sentence. "The plan of hiring convicts to contractors," says the Governor, "to be worked without the supervision of the officers of the prison, is open to many and serious objections." The Penitentiary is now not only self-sustaining, but is a source of revenue. The cash receipts for the last fiscal year were $75,083.22; the disbursements, $74,517.74, leaving on hand a cash balance of $565.48.

Department of Agriculture.—The commissioner collected during the year $25,262.16 tax on commercial fertilizers sold in the State from Nov. 1, 1883, to Oct. 31, 1884. The commissioner calls attention to the necessary expenditure in protecting the right and interest of the State in the phosphate territory, and recommends that all the expenses incurred in litigation be refunded to the department out of the phosphate royalty. During the year ended Aug. 31, 1884, 151,243 tons of rock were removed from the navigable streams of the State, against 129,318 tons in 1883, an increase of 21,925 tons. This is the largest amount ever removed in any one year. The State received for the last fiscal year royalty on rock mined amounting to $153,797.62, which exceeds the sum realized from this source in the previous year by $28,004.48. The report of the commissioner shows a slight decrease in the area devoted to cotton and corn in 1884 as compared with 1883, but an increase in yield; and the area and yield of wheat and oats were both increased.

Industrial Statistics.—The product of the manufacturing enterprises of the State for 1883 foots up $26,863,324. The annual product of the cotton-mills is worth $7,963,198, the number of looms and spindles having more than doubled since 1880. It is thought that the product of 1884 will exceed $9,000,000. The product of the lumber-mills is $5,592,565, of the turpentine-mills $2,912,271, making a total of $8,504,838. The products of mines and quarries have also increased since 1880.

Political.—The Democrats renominated the sitting State officers. The Republicans nominated a State ticket, but it was not kept in the field. On the 4th of November Governor Thompson received 67,895 votes, and the other Democratic candidates about the same number. The following were the votes returned for Presidential Electors: Democratic, 69,890; Republican, 21,733; scattering, 1,237. Six Democratic and one Republican (Seventh District) Congressmen were declared elected. The Legislature consists of 32 Democrats and 8 Republicans in the Senate, and 120 Democrats, 1 Independent, and 3 Republicans in the House.

The constitutional amendment limiting the power of counties to incur debts was approved by a vote of 38,069 to 7,271. On the 18th of March, Robert Smalls, colored Republican, was elected to Congress from the Seventh District, to fill the vacancy caused by the death of E. W. M. Mackey.

Legislative Session.—The Legislature met on the 25th of November and adjourned on the 24th of December. On the 9th of the latter month, Wade Hampton, Democrat, was reelected United States Senator. The work of the session was embodied in 189 acts. Not more than a dozen of these are of general importance. The Legislature was chiefly occupied in amending the laws of previous sessions, and in supplementing them. In no instance was there any significant change of policy.

A striking feature of the session was the friendliness with which the Legislature regarded railroad corporations, which had been the subject of fierce attack two years before.

The State-House appropriation for the present year is $75,000.

The constitutional amendment limiting the power of counties to contract indebtedness was ratified, and the civil-service resolutions of 1880 were reaffirmed.

Election Cases.—In April, at the opening of the United States Circuit Court, the cases on the calendar charging violation of the election law were stricken from the docket, on motion of U. S. District Attorney Melton, who said:

> When I was appointed district attorney I found upon my desk a very large number of these cases—something over two hundred—in which the witnesses and parties had been attending upon the court for several preceding terms. I brought the matter to the attention of the department, urging that these cases could not all be tried, and requesting that I be permitted to discontinue all of them, except a few which upon a re-examination of the cases might be found most meritorious. With a view of determining that fact the Attorney-General appointed temporarily a gentleman, Mr. Sanders, whose business it was to visit different parts of the State and select from the cases such as could be tried. This was done at the April term, 1882, and all the other cases were discontinued by leave of the department. The result was that there were at that term one conviction, one acquittal, one plea of guilty, and in all the other cases tried the juries failed to agree. In the fall of 1882 I requested the permission of the department to continue the cases on the docket. They have continued there to this day. Those cases, give me leave to say, had reference solely, it is true, to elections for members of Congress of the United States, but at that time, under the law of this State, the same box was used and the same ticket was used on which the persons to be voted for for State offices were named. So it was a difficult matter to investigate the election of the national officers without, at least, appearing to make inquiry into the election of officers of the State and county governments. I need not say that the purpose of the Government was to inquire as to the national election, at that time and at all other times declaring, both in words and in actions, that the Government of the United States did not undertake to interfere in any way with the local affairs of the State. There is no warrant of law in so doing, and it did not desire so to do. The Legislature of this State in 1882 separated the State and congressional elections, separated the boxes and separated the precincts and managers so that investigations might be had without even the semblance of interfering with matters pertaining to the State.
>
> At the last term of the court the cases again came up for trial. They were brought under these specific directions contained in the circular [of the Attorney-General] I have read, and they terminated with the same result—mistrials. I am now persuaded that in the present condition of public sentiment of a large proportion of the people of this State, convictions in these cases are impossible, and because I am so convinced I have deemed it proper—indeed, my duty—to the Government as well as to the people of the State, to represent the matter as it is to the Attorney-General of the United States. In the exercise of the discretion with which I am now by this letter [of the Attorney-General] invested, I move your Honor that each and every case upon the calendar of this court involving a violation of the election laws of the United States be discontinued.

Ex-Judge A. G. Magrath, who was counsel for the accused in the election cases, said:

> I have listened with a great deal of interest to the district attorney, and I have heard with bated breath what he has had to say, and I concur in it except in

one respect; where he bases his action in discontinuing these cases on the ground that it was impossible to secure convictions on account of the state of public sentiment. This might seem to carry with it the imputation that convictions with competent and sufficient evidence could not have been obtained. I deny that such is the truth. There is no case, in my judgment, which the district attorney has brought to trial which, if the judge had been sitting alone, would have resulted in a conviction of the accused. Convictions have not resulted because there has been no evidence against the accused upon which to have a conviction.

SPAIN, a monarchy in southern Europe. By the Constitution of 1876 the legislative power is vested in the Cortes with the King. The ministers are responsible to the Cortes, and must countersign all royal decrees. The Cortes are composed of a Senate and a House of Deputies. Senators are of three classes: Certain high public functionaries and princes of the blood royal and grandees of Spain, who are senators in their own right; senators nominated for life by the Crown; and senators elected for five years by corporations and citizens paying the highest taxes. The first two classes together must not exceed 180 members, which is also the limit of the third class.

The Chamber of Deputies is composed of members chosen for five years by the electoral colleges, in the proportion of one to every 50,000 inhabitants. A royal decree of Aug. 8, 1878, grants to Cuba the privilege of sending deputies to the Cortes in the proportion of one to every 40,000 free inhabitants paying taxes to the amount of not less than 125 pesetas ($25) annually. Deputies must be at least twenty-five years of age, and may be re-elected indefinitely. A deputy can not without resigning accept a pension, an office under the Government or in the royal household, or a decoration. Ministers are exempt from this law. Both houses sit every year. The King has the power to convoke, suspend, or dissolve them; but in the last case a new Cortes must meet within three months. The president and vice-president of the Senate are appointed by the Crown from among the senators only. The King and each Chamber possess the right of initiating legislation. All money bills must originate in the Chamber of Deputies. The Roman Catholic faith is the state religion. Each province has a local assembly.

The reigning sovereign is Alfonso XII, son of ex-Queen Isabella II, born Nov. 28, 1857, and proclaimed King Dec. 30, 1874. He was married Jan. 28, 1878, to Marie-de-las-Mercedes, daughter of the Duc de Montpensier, and Nov. 29, 1879, to Maria Christina, daughter of Archduke Charles Ferdinand of Austria. He has two daughters by the second marriage.

The Ministry.—The Cabinet, formed Jan. 18, 1884, is composed as follows: President of the Council, A. Canovas del Castillo; Minister of Foreign Affairs, J. de Elduayen, Marquis del Pazo de la Merced; Minister of Grace and Justice, F. de Silvela; Minister of Marine, J. Antequera y Bobadilla; Minister of Finance, F. Cos-Gayon; Minister of War, J. de Quesada, Marquis de Miravalles; Minister of the Interior, F. Romero y Robledo; Minister of Commerce and Agriculture, A. Pidal y Mon; Minister of the Colonies, Count de Tejeda de Valdosera. (For statistics of area and population, see "Annual Cyclopædia" for 1883.)

Finances.—The total receipts of the treasury, as stated in the budget for the year ending June 30, 1885, are 880,331,420 pesetas, of which 264,960,000 proceed from direct taxes, 131,479,000 from indirect, 137,938,000 from customs, 261,290,000 from stamps and *régie*, 30,420,420 from national property, 54,215,000 from the public treasury, and 29,000 from various sources. The total expenditures are placed at 880,306,937 pesetas, of which sum 9,800,000 pesetas are for the civil list, 1,918,785 for legislative expenses, 274,060,361 for the public debt, 2,634,767 for the judiciary, 49,097,461 for indemnities and pensions, 1,101,709 for the presidency of the Council of Ministers, 3,677,174 for Foreign Affairs, 55,516,588 for Grace and Justice, 131,372,045 for War, 37,832,690 for the Navy, 46,301,047 for the Interior, 105,695,407 for Public Works, 20,056,903 for Finance, and 141,742,080 for collection.

The Philippines.—The budget for 1884-'85 makes the total receipts 11,298,506 pesos fuertes, and the expenditures 11,341,054. The exports of sugar constitute 48 per cent. of the total value of exports. Other articles are Manila hemp, raw and worked, coffee, tobacco, cigars, dye-wood, etc. The tonnage entered in 1881 was 627,272 tons. The length of telegraph lines was 1,149 kilometres in 1880.

Commerce.—The total value of the imports in 1882 was 815,459,033 pesetas, or francs, against 650,569,490 in 1881, 473,583,616 in 1880, and 605,103,000 in 1879; the total value of the exports in 1882, 765,354,817, against 670,889,032 in 1881, 544,336,580 in 1880, and 528,043,000 in 1879. The imports from France in 1882 amounted to 220,800,000 pesetas, from Great Britain to 170,800,000, the United States 91,500,000, Germany 82,700,000, Belgium 32,800,000, Sweden and Norway 24,400,000, Russia 21,400,000, Cuba 23,800,000, Italy 18,400,000. The exports to France amounted to 309,700,000 pesetas, to Great Britain 235,100,000, to Cuba 67,700,000, to the United States 27,900,000, to Portugal 19,400,000, to the Argentine Republic 15,700,000. The imports of cereals in 1882 amounted to 101,100,000 pesetas, exports 15,500,000; exports of wines and liquors 335,300,000, imports 46,600,000; imports of groceries 46,200,000, exports 10,800,000; imports of tobacco 26,100,000; exports of fruits and vegetables 76,200,000; imports of animals and animal food-products 27,700,000, exports 12,000,000; total imports of articles of food and consumption 247,700,000 pesetas, total exports 449,800,000. The imports of coal amounted to 23,200,000 pesetas; the exports of minerals to 108,300,000; the exports of raw metals to 58,000,000; the imports of skins and leather to 17,000,000; exports 5,300,000; the imports of textile materials to 87,400,000, exports 8,500,000; the exports of esparto to 9,200,000; the imports of timber, etc., to 34,200,000, exports 1,300,000; the total imports of raw materials to 161,800,000, the exports to 190,600,000 pesetas. The imports of glass amounted to 4,100,000 pesetas; of metal wares to 32,500,000; of machines, etc., to 73,700,000; of yarns to 22,300,000, of textile manufactures to 62,300,000; of furniture to 4,600,000; the exports of corks to 11,800,000; the imports of paper and playing cards to 7,600,000, exports 5,500,000; the total imports of manufactured articles to 207,100,000 pesetas, the total exports to 17,300,000 pesetas. The imports of drugs, chemicals, and colors amounted to 15,800,000 pesetas, exports 6,000,000; imports of gums, fats, and oils, 10,000,000, exports 15,600,000; miscellaneous imports 173,100,000, exports 86,100,000 pesetas.

Shipping.—The tonnage entered at Spanish ports in 1882 was 2,681,569, 620,820 tons under the Spanish and 2,060,749 under foreign flags; the tonnage cleared, 6,234,833.

The merchant navy on Jan. 1, 1884, counted 1,902 vessels, ranging from 50 to 4,256 tons, including 426 steamers.

Railroads, Mails, and Telegraphs.—The railroads in operation Sept. 1, 1884, had a total length of 8,889 kilometres; under construction 3,444.

The number of private internal letters, postal-cards, and circulars forwarded in 1882–'83 was 83,611,522, of official 8,124,760; the number of international letters, etc., 19,295,460; the money value declared in valuable inclosures, 1,807,153,267 pesetas. The receipts of the post-office were 14,628,705, the expenditures 7,203,833 pesetas.

The length of telegraph lines in 1883 was 17,178, of wires 41,850 kilometres. The number of messages was 3,019,831, including 198,515 connected with the service, 2,087,180 internal, 654,214 international, and 79,922 *in transitu*. The receipts were 5,151,480 pesetas.

The Army.—The effective of the peninsular standing army for 1883–'84 was fixed by a decree of July 18, 1883, at 94,849 men, increased by 28,000 men during the three months devoted to the instruction of recruits. The effective of the army in Cuba was fixed at 25,653 men, that of the army in Porto Rico at 3,302 men, that of the army in the Philippines at 7,870 men. The garde civile, which is subordinated to the Ministry of War in matters of instruction and discipline, but in matters of service subject to the instructions of the Ministry of the Interior, numbered 780 officers and 14,756 men. The carabiniers or customs guard at the frontier and the ports consisted of 92 companies and 22 sections of horse.

The Navy.—The war fleet in 1884 counted 5 ironclad frigates with 60 guns, 9 screw-frigates with 220 guns, 5 cruisers of the first class, and 1 paddle-steamer reckoned in the first class; 5 paddle, 10 screw steamers, and 1 armed transport placed in the second class; 1 monitor, 1 floating battery, and 33 steamers in the third class; and 56 small gunboats and 8 torpedo-boats. The *personnel* of the navy consisted of 673 naval officers and 14,000 sailors, 376 officers and 7,033 marine infantry.

Change of Ministry.—When Don Alfonso called Canovas to the head of the ministry in 1879 after Gen. Martinez Campos, the former Premier, had been disowned by the Conservative party on account of the liberal reforms advocated by him, most of the other political leaders were either Carlists or Republicans. When Sagasta came out in favor of the dynasty and joined with Martinez Campos to form the Fusion party, the King felt constrained to call the new party to power, more particularly on account of its influence in the army. The Sagasta ministry was in turn upset by the Monarchical Democracy, afterward called the Dynastic Left, a new party, which demanded liberal reforms, formed by Marshal Serrano, the Duke de la Torre, and his nephew Gen. Lopez Dominguez, who separated from the Fusionists, and Moret, the parliamentary orator. The division in the Liberal party was so irreconcilable that the Posada-Herrara Cabinet was unable to carry out the programme of the Dynastic Left. There was a conservative reaction on account of the socialistic ferment and the republican conspiracy in the army. The revision of the Constitution, civil marriage, the reorganization of the army, free trade, and universal suffrage, were questions on which there was not unanimity of opinion even in the Dynastic Left. Posada was unable to obtain the support of Sagasta and his followers for any satisfactory legislative policy. As the Liberals were hopelessly divided, the King took the bold course of recalling the Conservatives. He was not moved by a desire to upset constitutional principles, but simply wished to find a working Cabinet that would tranquillize the public mind, which was seriously unsettled by the political turmoil. He had the approval of several of the ministers when he invited Canovas del Castillo to form a Cabinet, which was constituted Jan. 18, 1884. In Spain political questions have never yet been decided by the arbitrament of the popular vote, which can at any time be obtained in its favor by the government of the day. While the rest of the Posada-Herrara Cabinet were desirous of terminating the crisis in the regular constitutional way by a dissolution and new elections, Señor Posada, who was always conservative in his tendencies, counseled the course followed by the King, and even Moret, formerly a Republican, deprecated a new election, not because he expected a rejection of the ministerial programme, but because he dreaded an expression of the popular mind, which would go beyond the projects of the Dynastic Left and bring in question the continuance of monarchical government.

Four members of the new ministry sat in the former Canovas Cabinet and occupied the same positions. Canovas again took the presidency, without a portfolio; Elduayen, a confidant of King Alfonso, resumed the direction of Foreign Affairs; Cos-Gayon, that of Finance; and Romero Robledo, after Canovas the most prominent leader and orator of the Conservative party, that of the Interior. Marshal Quesada, the Minister of War, is the most eminent of Spanish generals, who commanded the Army of the North for nine years, until removed in pursuance of an order of his predecessor limiting the duration of the higher commands to three years. Silvela, the Minister of Justice, is a Conservative of moderate views, distinguished for political talents and eloquence. Pidal, Minister of Commerce, in which department is embraced the direction of public instruction, was well known for his extreme Clericalism. His appointment therefore excited misgivings.

The Republicans.—The new ministry, soon after taking office, came into sharp conflict with the Republicans. The Zorillists, who advocate revolutionary methods, were repressed by the Sagasta Government, while the Possiblists, led by Castelar, whose aims are governed by constitutional principles, were permitted to hold their political banquets and publish their newspapers. The banquet that was announced for February 13, in commemoration of the proclamation of the Spanish Republic in 1873, was forbidden by the Canovas ministry. The criticisms in the public press provoked by this decree were answered by a wholesale application of the Draconic press laws.

The ministry directed its main efforts to the extirpation of revolutionary republicanism in the army. Zorilla kept up an effective propaganda in the army from his retreat in Switzerland. The accession of the Conservatives gave a stimulus to the revolutionary movement. In March, 1884, the Government believed that it had unearthed a new military conspiracy. On March 16 numerous arrests were made among all ranks of the service, from generals down to sergeants. Non-commissioned officers were particularly accessible to the teaching of the revolutionary agents, and most of those imprisoned were of that class. The authorities failed to discover evidence against the accused. After a six weeks' investigation the majority of the prisoners, including all the commissioned officers, were released.

Shortly before the April election there were rumors of intended insurrections and military plots. The Republicans accused the ministry of spreading the reports with the intention of destroying the last vestige of electoral freedom. At the time of the election and for a few days after there were isolated disturbances in various provinces in the north and the south as well as in the center of Spain. Telegraph-wires were cut, rails torn up, railroad-bridges destroyed or undermined, in one case resulting in a catastrophe whereby many discharged soldiers and country people lost their lives. These murderous proceedings were indignantly denounced by the Zorillist press. There were simultaneous attempts, however, of an undoubtedly revolutionary character. Bands of Republican insurgents appeared in various places and committed excesses. In the ranks of the army there were instances of sedition. Sergeants deserted their regiments and roamed about the country urging the people to rise. A band of thirty men led by an ex-officer named Mongado crossed the frontier from France into Navarra, seized a custom-house post, and were the masters of that mountain district until they were pursued by the troops, their captain and several others slain, a number taken prisoners, and the rest driven back over the border. About the same time a number of officers and soldiers with mutinous intent left the military depot of Santa Coloma in Catalonia, but were soon captured by pursuing troops. The object of these isolated attempts was probably to keep alive the revolutionary feeling among the Republicans and to unsettle the public mind and destroy confidence in the stability of the existing system of government. The Mongado incursion led to reclamations by the Madrid Cabinet, to which the French Government replied in a way that failed to satisfy the Spanish authorities.

The Election.—The alleged discovery of a military plot was supposed by the radicals to be a *ruse* adopted to give the Government an excuse for exercising more than the usual administrative interference in the elections. In intrusting the Conservatives with the dissolution of the Cortes the King enabled them to obtain any proportionate representation of the parties they chose to have in the new Cortes, and to turn the large Liberal majority into an equally large Conservative majority. The provincial and municipal administrations were still in the hands of the Liberals, but the local bodies could be dissolved, suspended, replaced by commissions, or fined. The most effective and most dreaded method an opposition party possesses of bringing pressure to bear is by electoral abstention, opening the way to extra-constitutional agitation. The Republicans now threatened to retire from the parliamentary contest. In respect to the two Liberal monarchic parties the ministers pursued the policy of favoring the Dynastic Left, which aimed at the restoration of the democratic Constitution of 1869, and reducing to a minimum the representation of the Fusion party of moderate Liberals formed by the union of the Centralists, led by Martinez Campos and Alonso Martinez, with the Constitutional Liberals of Sagasta. The Fusionists raised an outcry over the arbitrary means taken to control or supersede the municipalities and provincial deputations elected under the administration of Sagasta. The municipalities determine the composition of the electoral bureaux for the congressional elections, and the provincial legislatures co-operate in the renewal of the retiring half of the Senate. Three years before, the Sagasta ministry had taken the same course, suspending all the refractory local bodies in order to control the elections. The Socialistic Republicans under Pi y Margall, called the Federalists, took, as usual, no part in the elections. Zorilla endeavored to keep his adherents from voting; yet that section of his party which follows Salmeron set up candidates. The Possiblists entered with energy into the campaign. The Carlists decided to abstain, except in the Basque provinces, where they are numerically strong.

The general election took place April 27. The Conservatives obtained 360 seats. The Fusionists, who numbered 260 in the last Cortes, came out better than the ministry intended, with a respectable minority of 38. The party of Serrano, notwithstanding the assistance of the Government, secured only 34 mandates. The Republicans won 6 seats, equally divided between the Possiblists and the followers of Salmeron. Cuba, which with Porto Rico returns 40 members, elected 8 Autonomists in spite of the repression exerted by the Spanish authorities. Of the 180 senators elected, 14 are Fusionists, 18 followers of Serrano, and the rest Ministerialists, excepting some Autonomists from the Antilles. As many of the life-seats were filled during the ministry of Sagasta, the Opposition counts one fourth of the senators, most of the adherents of Sagasta, while in the Congress it holds only one fifth of the seats.

Financial Policy.—The Conservative Government was beset with financial difficulties from the beginning. It was obliged to inaugurate its financial administration with the unpopular act of postponing the increase in the pay of soldiers and subaltern officers decreed by the Posada-Herrara ministry. The revenue fell short of the estimates, and the obligations under the Sagasta arrangement could only be met by the closest management.

Internal Politics.—The effect of the reactionary policy of Canovas and his colleagues, who in their desire to strengthen the monarchy treated as public enemies the pacific Republicans as well as the revolutionary agitators, and who for party interests specially antagonized the moderate Opposition, was to increase the following of Salmeron, who, without uniting with Castelar, adopted his constitutional methods, which the unpopularity of the Government rendered more effective, and also to consolidate the Liberals and advance the cause of the restoration of the Constitution of 1869, although in party transformations the Dynastic Left divided. The ministry created for itself a powerful and earnest opposition. Pidal was taken into the Cabinet to win the support of the Clericalists, who returned twenty-one deputies to the Cortes, and whose alliance seemed necessary to a Conservative Government. In September the diplomatic relations with Italy became clouded through the attitude of Spanish priests. The Government fell into such popular disfavor on this account that it seemed likely that the Liberals would be called into power again. A brilliant speech of Canovas, however, appeased the public. The university troubles in November created a difficulty that could not be disposed of satisfactorily, and left a more lasting impression.

University Tumults.—On the 19th of November a clerical demonstration excited the political passions of the Liberal students in Madrid, who responded with a counter-demonstration on the following day. The Ultramontane Minister of Instruction interfered, and the Government forbade political demonstrations. The students, who have always displayed their political sentiments in such manifestations without interference, repeated the demonstration of the 20th, which was violently suppressed by the police. The professors gave them moral support. On the 21st they gave an ovation to Prof. Morayta, who valiantly defended their rights, and then marched to the residence of Castelar and cheered the ex-President of the Republic and ex-professor of the university, thus evincing their republican sympathies although they avoided the cry of "the republic."

From the 20th to the 23d, 100 students were arrested and 25 wounded by the police. The students and professors persisted in their passive resistance, and, in spite of the threats of the Minister of Instruction, refused to expel or suspend the refractory students. All the high schools of Spain, except the theological and military institutes, and some of the Italian universities, sent addresses of sympathy. Judge Cabeza impeached the chief of police for resorting without necessity to the use of arms.

Foreign Policy.—The Canovas ministry was free from the ambitious hope of enrolling the country among the great powers, with which the Sagasta Cabinet was carried away. It neither courted the favor of Germany by an ostentatious leaning toward the central European alliance, as was done by the Sagasta ministry, nor showed excessive compliance toward republican France, as its immediate predecessors were impelled to do by their democratic sympathies. The Andorra question, the Mongado affair, and the Morocco question came up to disturb the good relations with France, yet without leaving any lasting ill-feeling. The country was greatly excited over the suspected designs of France in Morocco, apparently manifested in her intervention on behalf of the Sherif of Wazan, in the sedulous activity of the French representative in Tangier, M. Ordega, and in demands made in the French press for a new regulation of the Algerian boundary. The assurances of the French Government finally dispelled these doubts to a great extent. The desire of Germany to acquire colonies, and Spain's interest in the preservation of her old ones, afforded a new ground for the maintenance of cordial relations with Germany.

SPELLING REFORM. The organization of the movement for simplifying English spelling consists of a Spelling-Reform Association in the United States, anuther in England, and a third in Canada. The first of these associations was formd at an International Convention, which met at Philadelphia in 1876, as a result of previus discussion in the American Philological Association, the National Educational Association, and uther organizations in the United States; the Society of Arts, the Philological Society, and uther organizations in England. Filologists, educators, writers, printers, and stenografers are the most numerus classes in its membership. A generation ago, most linguistic scolars oposed the movement on etymological grounds; but now the scolarship of English-speaking filologists as a body is enlisted in its service. F. A. March, of Lafayette College, has been prezident, and Melvil Dewey, of Columbia College, has been secretary of the Association from its begining. The Tresurer and Corresponding Secretary is C. P. G. Scott, New York; and the Vice-Prezidents ar W. D. Whitney, F. J. Child, C. H. Toy, C. K. Nelson, W. T. Harris, F. A. P. Barnard, T. R. Price, J. M. Garnett, J. L. Johnson, J. C. Gilchrist, G. H. Paul, W. H. Wells, W. O. Rogers, R. M. Davis, H. D. Wyatt, J. M. Fish, W. W. W. Jones, Mrs. E. B. Burnz, and T. R. Vickroy, in the United States, with F. Max Müller, A. H. Sayce, W. W. Skeat, J. A. H. Murray, H. Sweet, R. Morris, and E. Jones, in England. The Association issued quarterly bulletins from 1876 til 1880, when the "Fonetic Ticher," a spelling-reform munthly, publisht by T. R. Vickroy, at St. Louis, became its organ. This paper has not apeard during 1884. At its annual meeting, in 1883, the Association voted to resume the publication of bulletins. In February, 1884, a bulletin was issued containing the following rules, which the English and American filological societis had adopted for the spelling of their transactions, and jointly recomended for imediate use by the public:

1. e.—Drop silent *e* when foneticaly useless, as in *live*, *vineyard*, *believe*, *bronze*, *single*, *engine*, *granite*, *eaten*, *rained*, etc.
2. ea.—Drop *a* from *ea* having the sound of *e*, as in *feather*, *leather*, *jealous*, etc.
   Drop *e* from *ea* having the sound of *a*, as in *heart*, *hearken*, etc.
3. eau.—For *beauty* uze the old *beuty*.
4. eo.—Drop *o* from *eo* having the sound of *e* as in *jeopardy*, *leopard*,
   For *yeoman* write *yoman*.
5. i.—Drop *i* of *parliament*.
6. o.—For *o* having the sound of *u* in *but* write *u* in *above* (abuv), *dozen*, *some* (sum), *tongue* (tung), and the like.
   For *women* restore *wimen*.
7. ou.—Drop *o* from *ou* having the sound of *u*, as in *journal*, *nourish*, *trouble*, *rough* (ruf) *tough* (tuf), and the like.
8. u.—Drop silent *u* after *g* before *a*, and in nativ English words, as *guarantee*, *guard*, *guess*, *guest*, *guild*, *guilt*, etc.
9. ue.—Drop final *ue* in *apologue*, *catalogue*, etc., *demagogue*, *pedagogue*, etc., *league*, *colleague*, *harangue*, *tongue* (tung), etc.
10. y.—Spell *rhyme* rime.
11. —Dubl consonants may be simplified.
    Final *b*, *d*, *g*, *n*, *r*, *t*, *f*, *l*, *z*, as in *ebb*, *add*, *egg*, *inn*, *purr*, *butt*, *bailiff*, *dull*, *buzz*, etc. (not *all*, *hall*).
    Medial before another consonant, as *battle*, *ripple*, *written* (writn), etc.
    Initial unaccented prefixes, and other unaccented syllabls, as in *abbreviate*, *accuse*, *affair*, etc., *curvetting*, *traveller*, etc.
12. b.—Drop silent *b* in *bomb*, *crumb*, *debt*, *doubt*, *dumb*, *lamb*, *limb*, *numb*, *plumb*, *subtle*, *succumb*, *thumb*.
13. c.—Change *c* back to *s* in *cinder*, *expence*, *fierce*, *hence*, *once*, *pence*, *scarce*, *since*, *source*, *thence*, *tierce*, *whence*.
14. ch.—Drop the *h* of *ch* in *chamomile*, *choler*, *cholera*, *melancholy*, *school*, *stomach*.
    Change to *k* in *ache* (ake), *anchor* (anker).
15. d.—Change *d* and *ed* final to *t* when so pronounced, as in *crossed* (crost), *looked* (lookt), etc., unless the *e* afects the preceding sound, as in *chafed*, *chanced*.
16. g.—Drop *g* in *feign*, *foreign*, *sovereign*.
17. gh.—Drop *h* in *aghast*, *burgh*, *ghost*.
    Drop *gh* in *haughty*, *though* (tho) *through* (thru).
    Change *gh* to *f* where it has that sound, as in *cough*, *enough*, *laughter*, *tough*, etc.
18. l.—Drop *l* in *could*.
19. p.—Drop *p* in *receipt*.
20. s.—Drop *s* in *aisle*, *demesne*, *island*.
    Change *s* to *z* in distinctiv words, as in *abuse* verb, *house* verb, *rise* verb, etc.
21. sc.—Drop *c* in *scent*, *scythe* (sithe).
22. tch.—Drop *t* in *catch*, *pitch*, *witch*, etc.
23. w.—Drop *w* in *whole*.
24. ph.—Write *f* for *ph*, as in *philosophy*, *sphere*, etc.

The use of the joint rules is ilustrated in this articl. The Spelling-Reform Association accepting, as in previus instances the guidance of the filologists, had also adopted these rules for its publications, and the bulletin anounced that the West Virginia Press Association had takn mesures toward begining their use. Educational and stenografic jurnals, newspapers, magazines, and uther periodicals, to the number of two hundred in the United States, wer alredy uzing sum amended spellings, and many of them had spelling-reform departments. For those who wish to make a protest against the current spelling without changing many words, the Association advizes the use of its "Five Rules," which ar the same in substance as Nos. 1, 2, 11, 15, and 24 of the preceding list. It has prepared also for complete fonetic spelling by adopting a revised form of the English alfabet prepared by a comittee of the American Philological Association in 1877. This alfabet consists of twenty-six letters, *k*, *q*, and *x* being thrown away, and three new letters being added for the vowels in *a*sk and *a*lms, *o*f and n*o*r, *u*p, and *u*rn. The old vowel-letters ar to be uzed much as in uther European languages; namely, for the vowels in *a*t and c*a*re, *e*bb and th*e*y, *i*t and pol*i*ce, *o*bey and *o*ld, p*u*ll and r*u*le. The long vowels may be distinguisht when necessary by the macron. Four difthongs ar recognized, which ar herd in *ai*sle, *ou*t, *oi*l, and f*eu*d. *C* takes the place of *k* and *q*, and each of the uther consonant letters is uzed for its present most common sound only, except that the usual digrafs ar retaind for the final consonants in ea*ch*, ki*ng*, a*sh*, and pi*th*, and *dh* and *zh* ar uzed for the first consonants in *th*e and a*z*ure. Elias Longley, of Cincinnati, who publisht in 1855 the "American Phonetic Dictionary," designd by Nathaniel Storrs, continues the work of reform. His "Phonetic Educator," a monthly organ of fonografy and spelling reform, is now in its sixth year. A recent number anounced that Bishop William Taylor had decided to uze, in his future missionary work in Africa, English books printed in fonetic spelling with Longley's alfabet. Uther missionaris hav alredy employd fonetic spelling for teaching English. In January, 1884, was established "The Jurnal ov American Orthoepy," which is printed entirely in fonetic spelling, in an alfabet devized by its editor, C. W. Larison, of Ringoes, N. J.

The English Spelling-Reform Association, formd in 1879, comprises an Educational Section, for the introduction of fonetic spelling into scools as an expeditius means of teaching children to read the present spelling; a Filological Section, for the introduction of fonetic spelling for filological, literary, and general purposes; and a Progressiv Section, for making progressiv reforms in the ordinary spelling. The prezidents of this Association hav been A. H. Sayce and J. H. Gladstone; amung the vice-prezidents ar A. Bain, J. Lubbock, W. W. Hunter, A. J. Mundella, A. Tennyson, and E. B. Tylor. Its offices ar at 8 John St., Adelphi, London, W. C. The English spelling-reformers of four hundred years ago askt only for uniform usage in spelling, but fonetic simplicity was calld for as erly as 1568, when Sir Thomas Smith publisht a book containing a complete fonetic scheme. Uther writers, including Ben Jonson, urged a complete reform, but uniformity without simplicity was attained in 1755, when Samuel Johnson, who scouted the idea of making spelling conform to pronunciation, publisht his dictionary. Yet the calls for a reform from such men as Benjamin Franklin and Noah Webster became more frequent, and sinse 1843 the movement may be said to hav been continuus. From that time to the present the fonotypy, or fonetic print, which grew out of Isaac Pitman's fonografy, has been constantly before the public. Mr. Pitman is stil the chief publisher of reform literature in England, and his "Phonetic Journal," a weekly devoted to fonografy and spelling reform, completed its forty-third year with 1884, having a circulation of sevnteen thousand. Alexander J. Ellis is anuther veteran reformer. From 1843 to 1849 he workt with Mr. Pitman, and in this period wrote "A Plea for Phonetic Spelling," which is the most complete statement of the case ever publisht. Recently he has activly aided the reform within the Philological Society, and has prepared papers for the Society's transactions, and varius popular writings and adresses on this subject. The chief obstacl to the movement is rather a disinclination to change than a disputing of the reformers' arguments. Anuther hindrance is the lack of agreement amung reformers as to how certain sounds shal be represented. Sum wish to ad thirteen new letters to the alfabet, uthers fewer, while stil uthers prefer to uze only the letters and accents with which uther important modern languages ar writn. Much of the energy of the reformers is spent in efforts to devize schemes that shal be acceptabl to all, and to win one anuther's adhesion. Indifferent persons, when approacht on the general subject, urge this state of afairs as an excuse for continued indifference. The reformers ar, nevertheless, confident of final success. A list of spelling-reform literature may be found in the "Circular of Information," No. 7, 1880, of the Bureau of Education at Washington.

A simplification of German spelling has gaind considerabl ground. The movement receivd a notabl impetus from Jacob Grimm, but the first important action was the calling, by the Prussian Government in 1876, of a conference of leading educators to consider this subject. No definit plan was agreed upon, but a newspaper discussion was arousd, and general atention was drawn to the matter. In the same year a "Society for Simplified German Spelling" was organized by Dr. F. W. Frikke, of Wiesbaden, who soon also establisht an organ for the society, entitled "Reform." By a ministerial decree, sum of the changes proposed by the society, such as dropping silent *h* following *t*, writing singl for dubl letters in certain words, *f* for *ph*, etc., wer made obligatory in text-books for the elementary scools of Prussia from April 1, 1880, and for the secondary scools five years later. Most of the uther German governments adopted the same rules, as did the Austrian. There is a second German Spelling-Reform Society, with a periodical, edited by Dr. W. Vietor, of Wiesbaden, amung whose objects ar the use of Roman letters, and of small-letter initials for nouns. It is reported that the Ottoman Porte is forming an academy for the Turkish language, the main object of which is to carry out a system of spelling reform in the department of public instruction.

STEWART, Sir **HERBERT**, an English soldier, born in 1841; died of wounds received in battle, at Gakdul Wells, Egypt. Feb. 16, 1885. He entered the military service in 1863, purchasing a commission under the old system, and was made a captain in 1868. Ten years later he was graduated at the Staff College, and the next year, 1879, he took part in the Zulu War. As brigade-major of cavalry he distinguished himself, especially in the operations against Sekukuni, and at the close of the war he held the rank of lieutenant-colonel. He also became chief of staff and military secretary to Gen. Wolseley. In 1881 he was on special duty in South Africa, and in the Boer War he was assistant-adjutant and quartermaster-general. The disaster at Majuba Hill threatened to end his career, but the firm friendship of Wolseley prevented his dismissal. In the campaign in Egypt in 1882 he did good service with the cavalry, distinguishing himself especially at Kassassin, and at the capture of Cairo. For this he was promoted and made aide-de-camp to the Queen. In the Soudan he commanded the cavalry brigade under Graham, distinguished himself at El-Teb, Tamai, and Tel-el-Kebir, for which he was knighted, and participated in Gen. Low's ride through the desert to Cairo. He commanded the division that crossed the Bayuda Desert from Korti to Metemneh for the purpose of communicating with and ultimately rescuing Gen. Gordon, who was then shut up in Khartoum. On Jan. 17, 1885, they fought a battle at Abu-Klea Wells, and on the 19th another at Shebakat. Here Gen. Stewart received his wound. He was carried with the other wounded to Gakdul Wells, where he died. He was buried, with military honors, at the entrance of the valley that leads to Gakdul.

SIR HERBERT STEWART.

STIGMATA MAIDIS. See Drugs, New.

SURGERY. The year 1884 was not marked by any special innovations in the province of surgery, though the tendency was toward increased boldness, especially in operations within the abdomen. Cleanliness is now universally insisted upon. There is a disposition to return to the simplest form of dressings and after-treatment. Conservatism in regard to the treatment of severe injuries is a marked feature of modern surgery. There is a greater disposition to trust to the curative power of nature; many limbs are saved that would formerly have been amputated. Peritoneal surgery has steadily become more successful, though American statistics are still less flattering than those of foreign surgeons. The reason for this, as suggested by a recent distinguished English visitor, is doubtless because the latter give their exclusive attention to this special work, and hence avoid those sources of infection to which the general operator is exposed.

Dressings.—While the year witnessed no essential changes in this important branch of surgery, various modifications were introduced. Lister himself, with whose name antiseptic surgery is so closely connected, has made some important concessions in regard to the details of his method. In his latest written contribution upon the subject, he not only acknowledges that the spray is not so important an element as he had formerly insisted, but he sums up the whole matter with these words: "We do not require any scientific theory in order to believe in antiseptic treatment. You need not believe in the germ-theory at all; if you are not convinced of the truth of the germ-theory of putrefaction and of septic agencies generally, no matter whatsoever, with reference to antiseptic practice, all you have to believe is that there are such things as putrefaction and other septic agencies, that our wounds are liable to them, that they are very pernicious, that these things come from without, and that we have the means of preventing them by various chemical agencies. This is all that we require, and I think anybody that knows the present state of surgical practice must admit these to be truisms. It has sometimes been a great grief to me that, because gentlemen are not convinced of the germ-theory out-and-out, therefore they lay aside antiseptic treatment altogether." Still later, in his address before the Medical Society of London, Oct. 20, 1884, he made this frank statement: "When, in an address delivered at the opening meeting of last session, I expressed myself in what some of my hearers regarded as terms of overweening confidence in antiseptic treatment, I little thought that a year later I should have to tell you of failures on my own part."

Following out this idea, we find that Lister's adherents, both in America and abroad, now seldom use the spray, except in abdominal surgery, while in ordinary operations they rely upon perfect cleanliness, free drainage, and the use of such applications as have been proved by experience to be not only powerful germicides, but innocuous to the patient. The latter consideration is most important.

Not to mention a host of substances that have enjoyed a passing reputation as antiseptics, carbolic acid, corrosive sublimate, and iodoform may be regarded as the agents now almost universally in use. The former fell into disrepute because of several cases in which its use was followed by alarming and even fatal toxical symptoms, and iodoform was introduced as a substitute. But the lavish use of iodoform in extensive wounds was also attended by fatal poisoning in several instances, so that this agent was also viewed with disfavor. However, a better acquaintance with its properties has led to its being restored to its former place as a surgical dressing, and it is now used on an enormous scale, especially in Vienna, with the most satisfactory results.

In a solution of corrosive sublimate, of a strength of one part in one or two thousand, we unite all of the elements of cheapness, germicidal power, and safety. Lister, in a late address, warmly advocated the employment of this substance, which he regards as equal, if not superior to, carbolic acid.

Iodoform, as employed in German surgery, is an extremely simple and efficient dressing, much in favor with Billroth. The details of the dressing are so few that they may be carried out by any non-professional person. The wound is thoroughly cleansed with the sublimate solution, a drainage-tube (now made of decalcified bone) is introduced, it is sewed up with silk or catgut sutures, and the surface is sprinkled with powdered iodoform. Several layers of gauze, impregnated with the same powder, are applied, and secured with a bandage. Abscesses are injected with "iodoform glycerine," superficial cuts are hermetically sealed with "iodoform collodion," while small sticks of the same substance (made up with cocoa-butter or gelatine) are thrust into deep, narrow wounds, and allowed to dissolve there.

"In Germany," says a recent writer, "the reign of carbolic acid is over and corrosive sublimate reigns in its stead." This is not strictly true, yet this agent is widely used. Dressings of gauze, jute, cotton, peat, wood-pulp, moss, and even powdered glass, are saturated with the sublimate and applied directly to the wound.

Brüns, of Tübingen, has lately introduced a dressing that he calls "wood-wool." It is finely ground wood, such as is used in making paper, and is a clean, soft material, of extraordinary lightness, capable of absorbing a large amount of fluid. It may be applied to the surface of the wound, after being dipped in the sublimate solution. Such a dressing need not be disturbed for a week or two.

Enough has been said to give a general idea of the present state of antiseptic surgery. Its constant tendency is toward the simplification of details, cleanliness being more strongly insisted upon than ever. Although surprising results have been attained during the past year by operators that strongly repudiate "Listerism," these same surgeons owe their success to the rigid adherence to the cardinal principle of that system, cleanliness.

Cold Water.—This agent has been more systematically employed than formerly, in the after-treatment of surgical cases. An old invention, but one recently reintroduced, is the cold-water coil, which consists of coils of rubber or metal tubing of all shapes and sizes. These may be placed upon the head, spine, abdomen, or around a wounded limb, and kept cool by the action of a constant stream of ice-water flowing through them. This appliance is most efficacious in subduing inflammation and lowering fever. It is especially useful in peritonitis following operations within the abdominal cavity.

Rectal Etherization.—This novel method of administering ether has recently attracted a good deal of attention among surgeons. The credit of the origination of this process has been given to Dr. Molière, of Lyons, but it is certain that it was practiced by Pirogoff as early as 1847. The *modus operandi* may be described in a few words. The anæsthetic is contained in an ordinary glass flask, which is placed in a dish of warm water. One end of a rubber tube is attached to the neck of the bottle, while the other end is inserted in the rectum. The ether is gradually evaporated by the heat of the water, and its vapor passes up into the bowel, by the mucous membrane of which it is rapidly absorbed. The patient complains, within a few seconds, of an etherish taste in the mouth, and the peculiar odor of the drug can be detected in his breath. The pulse becomes rapid, the pupils dilate, the patient stiffens out his limbs, and finally becomes unconscious. The advantages claimed for this method are, the absence of the preliminary stage of excitement, which is so often noticed when the vapor is inhaled, the fact that there is less liability to vomiting after recovery, and the greater convenience of the surgeon, especially in operations about the face. But in spite of the enthusiasm with which this novelty was hailed, the occurrence of several deaths as a direct result of the procedure has proved that it is not as harmless as was supposed. That ether, the safest of anæsthetics, becomes unmanageable when administered by the rectum, is now certain; there is danger of severe congestion of the mucous membrane of the bowel, and fatal cases of intestinal hæmorrhage have been reported. A recent writer concludes an article upon this subject with these cautions: Reserve rectal etherization for cases in which there are positive objections to the ordinary mode of administration. Never give it then, except to robust adults. Never use more than two ounces of ether, and remove the tube from the rectum as soon as insensibility is complete.

In conclusion, it may be said that this method will probably never be generally adopted, nor is there any reason why it should not be regarded as one of the curiosities of medicine.

Transfusion.—Under this name, we formerly understood the introduction of fresh blood (obtained either directly or indirectly from the veins of another) into the system of a patient that had been reduced to a desperate condition by excessive hæmorrhage. Its meaning has now been extended so as to include the intra-venous injection of other fluids, especially of fresh milk. Of late the same favorable results have been claimed for weak solutions of salt, the idea being that in this way the lost fluid is restored to the vessels and the heart's action is sustained. A small quantity of the solution (having a strength of 1 to 150) is injected slowly into the principal vein of the forearm, through a glass tube; from five to fifteen hundred centigrammes are sufficient. Many cases have been reported in which life has been saved by this simple process.

Bladder, Operations on.—The old operation of supra-pubic lithotomy, or removal of stone by an incision made through the abdomen into the bladder, has been highly recommended by French surgeons, and bids fair to be generally resorted to in certain cases to which lithotrity and the ordinary lithotomy operation are inapplicable, as in aged patients and young girls, and where the bladder is very sensitive; also where the stone is very large, or is encysted—so inclosed in the mucous membrane that it can not be extracted through a small opening.

Sir Henry Thompson has called attention to certain cases in which it is justifiable to open the bladder and explore its interior, in order to discover, and remove if possible, the cause of distressing symptoms. Hæmorrhage from the organ, without a clear cause, is the principal indication for the operation. In simple cases the mere opening of the bladder, and the establishing of free drainage, are sufficient to effect a cure. If a tumor is present (unless it be an extensive cancer), it is removed.

Laryngotomy.—Formerly removal of the entire larynx was regarded as an impossible operation. It has now been accomplished upward of sixty times, generally for cancer, with a mortality of 60 per cent. Although the operation is condemned by American surgeons, who prefer the palliative measure, tracheotomy, or opening of the windpipe, laryngotomy is considered as justifiable where the patient is not above fifty years of age and enjoys good general health, and where the disease is limited to the organ removed.

Thyroidectomy.—Removal of goître, or swelling of the thyroid gland, has been performed about four hundred times, and frequently with success. It is mostly practiced by German surgeons. The chief indication for the operation is extreme dyspnœa, due to pressure of the tumor on the windpipe. So experienced a surgeon as Bardeleben says that, out of many hundred examples of this affection, he has only seen a score that seemed to call for this radical measure. The difficulties encountered in removing a growth so richly supplied with blood-vessels, and in so close proximity to important structures in the neck, make the operation one of the most serious in surgery.

Extirpation of the Spleen.—The past year has witnessed several operations of this nature. Credé has recently collected all of the recorded cases, to the number of thirty, of which nine were successful. It is noticeable that only one leucæmic patient has ever recovered from this operation—a formidable argument against resort to such an extreme measure for the cure of leucocythæmia. The same writer calls attention to the interesting fact that, after removal of the spleen, the white corpuscles of the blood become at first greatly increased in number, but afterward return to their normal condition; and he infers from this that the spleen, doubtless, transforms the white corpuscles into red. He suggests that the thyroid gland probably discharges the duties of the spleen after the ablation of the latter organ. It should not be forgotten that in severe injuries to the abdomen where the normal spleen protrudes from the wound, its removal is attended with far less risk than when the organ is extirpated for disease.

Resection of the Lung.—This bold procedure was actually carried out successfully by an Italian surgeon. The patient was an old woman, with a large phthisical cavity in the right lung. The entire upper lobe was taken away through an opening made in the anterior wall of the chest, two ribs being removed in order to give sufficient room. There was no trouble with the breathing during and after the operation, and the patient lived for several days. This account is introduced more for the purpose of giving the reader some idea of the boldness of modern surgery, than with the view of applauding a desperate measure.

Resection of the Pylorus.—This operation was referred to in a former volume. About forty cases are now on record in which a portion of the stomach has been removed for cancer, and as many more in which the abdomen was opened; but it was necessary to abandon the attempt, on account of unlooked-for complications. The appalling mortality of over 90 per cent. has deterred American surgeons from undertaking the operation. Billroth, who has been particularly identified with the measure, does not regard it with as much favor as formerly. So difficult is it to determine beforehand just what cases are suitable for operation, that he finds only one out of sixty patients suffering with cancer of the stomach in whom he ventures to perform it.

Digital Divulsion of the Pylorus.—This is an ingenious measure, recently introduced by Prof. Loreta, of Bologna, for the cure of cases in which an ulcer at the outlet of the stomach has so contracted the orifice that the food can not pass out into the intestine, and the patient is in danger of starving to death. The stomach is exposed by an incision through the abdomen directly over it, and its anterior wall is opened midway between the two ends. The index-finger of one hand is then passed down through the stricture, and the other forefinger is introduced beside it. The contracted canal is stretched by separating the two fingers, just as one would stretch the mouth of a rubber bag. When the opening has been made large enough the fingers are withdrawn, and the wound of the stomach is closed with fine silk. Two patients have been permanently cured by this.

Operations on Nerves.—Nerve-stretching is already an old operation, but it has been practiced extensively during the past year with great success, especially in cases of intractable neuralgia. Surgeons do not ever despair now of restoring the functions of a nerve that has been completely divided for months. After sensation has been completely lost in the parts supplied by the nerve, it has been perfectly regained within a year when the separated ends were brought together and united by a few horse-hair stitches.

Fracture of the Patella.—Fracture of the knee-pan has long been the *bête noir* of surgeons, because it is impossible to keep the fragments in close apposition so as to obtain bony union. Lister has brought into notice an old operation, which had fallen into disuse, for avoiding the separation of the pieces by cutting down upon and wiring them together. Surgeons have hitherto shrunk from this as an extreme measure, on account of their dread of setting up inflammation of the knee-joint; but Lister has proved that, with due antiseptic precautions, it is not only justifiable, but highly successful. His example has been followed by many surgeons, both in Europe and America.

Surgery of the Brain.—A successful case has recently been reported in England, in which the skull was opened, and a tumor as large as a walnut was actually removed from the brain-substance. It was necessary to penetrate to the distance of a quarter of an inch in order to expose the growth. The exact position and size of the tumor were accurately diagnosticated before the brain was incised.

SWEDEN AND NORWAY, two kingdoms occupying the Scandinavian Peninsula in northern Europe, united indissolubly, by the Riksact of 1815, in the person of the sovereign. Succession to the throne is hereditary in the house of Ponte Corvo. The throne is to be filled, in case of absolute vacancy, by the joint action of the two Parliaments. The common affairs of the two kingdoms are decided upon by a Council of State.

The reigning King is Oscar II, born Jan. 21, 1829, grandson of Marshal Bernadotte, and the fourth sovereign of the line.

SWEDEN. Constitution.—The legislative powers are vested in the Diet, subject to the approval of the King, save in matters of political administration and taxation, the former of which is the exclusive province of the sovereign, and the latter that of the Diet. The Diet consists of two chambers, both elective. The franchise is limited by a property qualification.

Area and Population.—The area of Sweden is 170,979 square miles. The population on Dec. 31, 1883, was 4,603,595, of which number 2,230,782 were males and 2,372,818 females. The number of marriages in 1882 was 28,967; of births, 138,064; of deaths, 83,170; surplus of births, 54,894. The number of emigrants in 1882 was 50,178, against 45,992 in 1881, 42,109 in 1880, 17,637 in 1879, 9,032 in 1878, and 7,610 in 1877. The population in 1880 was divided as to religion into 4,544,434 Lutherans, 14,627 Baptists, 1,591 Methodists, 810 Roman Catholics, 2,993 Israelites, and 1,218 Mormons and other dissenters. The number of persons of foreign birth was 18,587. The city of Stockholm contained in 1883 194,469 inhabitants, Gothenburg 81,507.

Commerce.—The total value of the imports in 1882 was 229,820,000 crowns, against 288,060,000 in 1881, and 282,788,000 in 1880; the total value of the exports 253,887,000, against 223,196,000 in 1881, and 236,643,000 in 1880. The imports from Germany were 83,966,000 crowns in value, from England 78,201,000, from Denmark 52,334,000, from Norway 18,812,000, from Russia 16,815,000, those from the United States 6,173,000 crowns; the exports to Great Britain 127,457,000, to France 33,366,000, to Denmark 24,707,000, to Germany 18,378,000, those to the United States 1,611,000 crowns.

Navigation.—The tonnage entered with cargoes at Swedish ports in 1882 was 1,882,042 tons, 979,875 Swedish, 174,138 Norwegian, and 728,029 foreign; the tonnage cleared with cargoes 3,267,361 tons, 1,296,917 Swedish, 732,703 Norwegian, and 1,237,741 foreign.

The mercantile marine in 1882 had a sailing tonnage of 68,796 tons employed exclusively in domestic commerce, and 386,381 tons employed in foreign commerce, and a steam tonnage of 81,673 tons employed in the domestic and 60,826 in the foreign commerce.

Communications.—The railroads had at the end of 1883 a length of 6,400 kilometres, 2,299 belonging to the state, and 4,101 to companies.

The post-office forwarded in 1882 39,906,654 letters and cards, 4,035,110 printed inclosures, and 28,326,818 journals. The receipts were 5,657,969, the expenses 4,797,164 crowns.

The state telegraph system had 8,551 kilometres of lines and 20,712 of wires in 1883. The dispatches numbered 1,209,088, of which 437,284 were international. The receipts were 1,350,442, the expenses 1,246,900 crowns.

Finances.—The budget for 1885 gives the total receipts from all sources as 80,800,000 crowns (1 crown = 28 cents); 5,317,000 being the balance in the treasury; 21,970,000 crowns the ordinary receipts from direct taxes, domains and forests, telegraphs, railroads, etc.; 51,910,000 crowns the extraordinary receipts from customs and excise duties, stamps, post-office, etc.; 803,000 crowns the receipts of the reserved postal fund, and 1,300,000 crowns the net receipts of the Bank of Sweden.

The expenditures are estimated at the same sum. The ordinary expenditures are fixed at 59,812,430 crowns, of which 1,338,000 are for the royal household, 3,758,000 for justice, 613,800 for foreign affairs, 17,397,200 for the army, 5,522,000 for the navy, 4,601,282 for the interior department, 10,261,048 for public instruction and worship, 2,621,100 for pensions, and 13,700,000 for financial administration. The extraordinary expenditures are stated as 9,035,570 crowns, 3,283,800 for the army and navy, and 5,751,770 for various departments. The expenditures for the public debt amount to 10,227,000 crowns, 900,000 crowns are reserved for the construction of the new palace for the Diet, and 825,000 left as a surplus.

The public debt, contracted solely for railroad construction, amounted, on Jan. 1, 1884, to 227,871,675 crowns, of which 193,815,275 represented foreign loans, paying 4 and 4½ per cent. interest, and 34,056,400 domestic loans.

The Army.—The army is composed of five classes of troops: men enlisted for three, four, and six years, forming the guards, hussars, artillery, and engineers; the Indelta, who are enlisted for life and cantoned on the estates of the land-owners; the Gothland militia, not liable to service outside of the island; the conscripted troops, who are called out annually for fifteen days; and the volunteer rifle corps. The first two classes constitute the standing army. The effective in 1884 of the enlisted troops was 2,230 infantry, 1,066 cavalry, 3,729 artillery, and 894 engineers; of the cantoned troops, 23,017 infantry and 3,557 cavalry; total regular army, 34,493 enlisted men. The military forces of all five classes numbered 192,168 officers and men, with 282 cannons and 6,490 horses.

The Navy.—The navy in 1883 consisted of 46 steamers, with 117 guns, 10 sail-ships, and 87 galleys. There were 1 frigate, 5 corvettes, 4 torpedo-boats, and a number of small monitors and gunboats.

Legislation and Politics.—The Diet, during the session that closed May 15, passed a patent law based on the German law and the international patent convention, an act regulating the property rights of married women, a mining law, an act abolishing the penalty of a bread-and-water diet in prisons, and other useful measures. The attempt of the Government to carry through parts of the army bill that was rejected in 1883 were unsuccessful. The lower house passed measures for the remission of the land-tax, and the relief of the peasants from the burden of supporting the cantoned troops. The large proprietors, who escape this burden, and who furnish the majority of the representatives in the upper house, defeated the proposed 10 per cent. reduction in the military land-tax. In the elections for the lower chamber in the beginning of October a Liberal party, affiliated with the Peasant party, captured from the Conservatives sixteen out of the nineteen seats. This new movement of the democratic sections of the town-people presages an exciting struggle with the aristocratic and military elements, which have ruled the country in their own interest, and hitherto resisted the equitable demands of the farming class.

NORWAY. Constitution.—The Grundlov of Nov. 4, 1814, vests the legislative power in the Storthing. The executive authority is exercised in the name of the King by a State Council, composed of two Ministers of State and at least seven councilors. Two councilors, who are changed annually, and one of the ministers, form a deputation residing near the person of the King, at Stockholm.

Area and Population.—The area of Norway is 122,869 square miles. The population at the close of 1880 was estimated to be 1,913,000. The number of marriages in 1882 was 12,874; births, 59,375; deaths, 35,325; excess of births, 24,050. The number of persons who emigrated in 1882 was 28,804; in 1881, 25,976; in 1880, 20,212; in 1879, 7,608; in 1878, 4,863. Among the inhabitants of Norway in 1875 there were 7,594 Finns, 14,645 sedentary Lapps, 1,073 nomadic Lapps, and 8,396 *métis*. The number of persons of foreign birth was 37,350, of whom 29,340 were born in Sweden. The population of Christiania, the capital, was 76,054; of Bergen, 33,830.

Commerce.—The total value of the imports in 1883 was 161,315,000 crowns, against 160,475,000 in 1882; of the exports 116,139,000, against 122,955,000 crowns. The imports from Germany amounted to 46,800,000 crowns, from Great Britain 42,333,000, from Sweden 19,111,000, from Russia and Finland 14,601, from Denmark 13,200,000; the exports to Great Britain were 40,107,000 crowns in value, to Germany 16,779,000, to Sweden 14,278,000, to Spain 12,151,000. The import trade with the United States was of the value of 6,177,000 crowns; the export trade, 322,000.

Navigation.—The aggregate tonnage of vessels entered at Norwegian ports in 1882 was 2,271,470 tons, of which 1,524,931 were under the Norwegian and 746,539 under foreign flags. The tonnage entered with cargoes was 1,175,965; in ballast, 1,095,505. The total tonnage cleared was 2,192,069; Norwegian, 1,442,653; foreign, 749,416; with cargoes, 1,854,020; in ballast, 338,049.

The merchant fleet in 1883 numbered 7,918 vessels of 1,530,004 tons, manned by 60,598 sailors, as compared with 7,977 vessels, 1,520,404 tons, and 60,064 sailors, Jan. 1, 1882. The steam fleet in 1882 consisted of 407 vessels, of 82,519 tons.

Communications.—The length of railroad in operation at the close of 1883 was 1,561 kilometres. The number of letters forwarded by the post-office in 1883 was 13,039,741 domestic and 5,179,226 foreign; the number of journals, 14,192,010; the amount of money transmitted, 198,109,106 crowns. The receipts were 2,031,804, the expenses 1,985,092 crowns. The telegraph lines belonging to the state had a total length of 7,896 kilometres in the beginning of 1884; length of wires, 13,687 kilometres. The number of messages sent was 874,472, of which 374,094 were foreign. The receipts were 972,687, the expenses 1,027,206 crowns. There were 1,611 kilometres of lines, with 2,483 kilometres of wire, belonging to railroad companies.

The Army.—The military forces consist of the line troops, the landvaern, train, and the landstorm. The army of the line is limited to 750 officers and 18,000 men, recruited by voluntary enlistment and the conscription of young men twenty-two years of age to make up the complement. The landvaern is only required to serve in the defense of the country. The landstorm can only be organized in case of extreme national peril.

The Navy.—The war-fleet consisted in 1884 of 40 steam-vessels of all classes, with 150 guns, and 46 other vessels.

Finances.—The receipts of the treasury during the fiscal year ending June 30, 1883, were 42,876,000 crowns from ordinary sources and 47,789,900 crowns including proceeds of loans for railroad construction and the loan of 1880. The gross receipts from customs were 20,515,000 crowns; from the liquor-tax, 3,253,100; from the malt-tax, 2,230,000; from railroads, 5,779,300. The expenditures for ordinary purposes amounted to 40,009,300, for railroad construction to 3,255,100 crowns. The expenditures for the army were 6,350,200; for financial administration, 9,819,200; for the interior, including working expenses of railroad, 6,479,400; for public worship and instruction, 3,803,000; for justice, police, and sanitary service, 4,392,900 crowns.

The public debt on June 30, 1833, amounted to 108,122,200 crowns, paying 4½ per cent. interest, except the loan of 20,869,500 crowns raised in 1880 at 4 per cent. The reproductive assets of the state were valued at 129,484,000 crowns. A new 4 per cent. loan of 28,111,200 crowns was negotiated in Germany. The loan, issued at $98\frac{1}{20}$, is redeemable within forty years, at par or at the market price.

Impeachment of the Ministers.—The constitutional struggle over the question of ministerial responsibility was brought to an issue by the action of the Odelsthing taken April 23, 1883, on the resolution to impeach the ministers. The radicals proposed a compromise on the basis of a change of ministers and the abandonment of the project of a State Council. The Conservatives insisted on maintaining the right of the King to choose his advisers. The members of the Lagthing and the justices of the Supreme Court form together the tribunal for the trial of impeachments. This court held a preliminary sitting May 18, 1883. Of the twenty-nine members of the Lagthing, twenty-four had voted, as deputies in the Storthing, for the resolve of June 9, 1880, in favor of the impeachment of the ministry. Their competency was therefore called into question, but was affirmed by the votes of the entire Lagthing and one of the judges of the Supreme Court against those of the other eight judges. The tribunal, after the rejection of twelve of the most ardent partisans by the accused, consisted of seventeen members of the Lagthing, most of them farmers, and only one a lawyer, with the nine justices. Minister of State Selmer was summoned to appear before the court, August 7. The sittings were taken up with questions of organization and procedure until October 22, when the trial of the Prime Minister began. He was charged with official misprisions, for which it was moved that he be dismissed from his post, disqualified for every public trust, and mulcted in the costs of the action. The court sat continuously until Feb. 27, 1884, when the judgment was delivered. Selmer was condemned to lose his office as Minister of State and member of the King's Council, and to bear the costs of the prosecution, because he had advised the King (1) not to sanction the attendance of the Cabinet at the deliberations of the Storthing in pursuance of the resolve of the Storthing adopted March 17, 1880; (2) not to execute the act of the Storthing in relation to appropriations for the Associations for Arming the People, and the Society for the Advancement of Corporeal and Martial Exercises, passed June 14, 1882; and (3) not to enforce certain provisions of the act of June 16 and 17, 1882, in relation to the pay of the railroad officials. The latter directed that two members of the Storthing should participate in the central administration of the railroads. The act on which the second count in the indictment was based granted 30,000 crowns for the benefit of volunteer rifle associations. The Conservatives urged the King to annul the decision, which was officially notified to him March 1. Such an act would be a direct breach of the Constitution, and being so advised by the Minister of Justice, he decided, March 11, to remove Selmer, who had meanwhile proffered his resignation.

The case of Minister of State Kierulf was opened March 7. The advocate for the defense demanded the exclusion of six of the members of the Lagthing who as members of the Liberal Union in the Storthing had assisted in conducting the initiatory steps of the action against the ministry. When the judges refused to investigate the matter, he and his client refused to make any defense. On March 17 Kierulf was condemned to the same penalties as Selmer. The nine other accused ministers declined likewise to put in any defense, basing their refusal on the action of the judges in taking up their cases collectively and on the ruling on the question of competency raised in the Kierulf case. Vogt, Holmboe, Halliesen, Jensen, Munthe, and Bachke, were condemned one after the other between the 20th and 29th of March to the loss of their offices. In each case they were retired with honors by the King. Johansen, Schweigard, and Hertzberg were fined instead of dismissed from office.

The question in dispute between the Radical and the Conservative parties, which employed the court of impeachment and the King as their respective instruments, was the right of veto possessed by the sovereign. The Constitution gives him only a suspensive veto over most if not all legislation. The Conservatives claimed, in virtue of certain not very clear provisions of the Constitution, that he has an absolute veto in all constitutional matters, and construed the first enactment that was nullified as involving the constitutional question of the right of the King to direct the administration. The two financial measures that were vetoed brought up the question of the right of the King to veto money grants, which the Radicals denied and the Conservatives upheld. Both parties really aimed at an alteration of the Constitution. The Conservatives, who have no constituency among the rural class that form the great mass of the population, desired to curtail the rights of representative government by enlarging the legislative prerogative of the Crown and creating a State Council, while the Radicals wished to introduce responsible government and to compel the King to select his ministers from the party representing the opinions and interests of the great majority of the people. The act requiring the attendance of ministers in the Storthing was intended to introduce the principle of ministerial responsibility, that for admitting two members of the Storthing to the railroad directory to establish the principle of parliamentary control over the administration, and that subsidizing volunteer military associations was avowedly directed to the creation of a "Parliament army," which would defend, if necessary, the rights and aspirations of the people against the royal troops.

After the decision of the court against the indicted ministers, the Swedish Government threatened to intervene on the ground that, if the absolute veto of the King in constitutional questions was denied, the Norwegian Legislature would have the power to annul the union of the two kingdoms. The King, in dismissing Selmer, issued a manifesto protesting against the result of the trial on this ground, and declaring his determination to maintain the absolute veto and all the powers guaranteed to the King by the Constitution.

The importance of maintaining the royal prerogative was impressed upon King Oscar by his Swedish as well as by his Norwegian counselors. The Swedish Cabinet, in reply to an inquiry of the King, declared their conviction that in the Norwegian, as well as in the Swedish Constitution, no change can be made without the approval of the sovereign. The interposition of the Swedish ministry was loudly resented by the majority of the Storthing. The King, deeming that the interests of the union were at stake, decided to keep up the conflict with the Norwegian people. Schweigaard, one of the three ministers that had only been condemned to pay a heavy fine by the Rigsret, was called upon to form a new Cabinet. The other two were kept in their places; Prof. Rydin, of the University of Upsala, who had written in defense of the absolute veto, was made Minister of Justice, and the other portfolios were given to Conservatives who coincided in their opinions with the discharged ministers. The appointment of such a ministry raised a storm throughout the country, which grew more violent when the Government took proceedings against a number of newspapers and writers, among them the poet Björnsen, for lese-majesty, and in other ways inaugurated a *régime* of violent repression. Influential men of moderate and conservative views besought the King to come to a compromise with the Radicals. Dr. Broch effected an understanding but was unable to form a moderate ministry. The Conservatives refused to conduct the Government longer unless the King would maintain the position he had taken upon their advice with military force. The King would not take the responsibility of plunging the country into civil war. He was compelled, therefore, either to abdicate or to accept a Radical ministry. He finally accepted the latter alternative and called upon Sverdrup, the leader of the Radical party, to form a Cabinet. The new ministry was constituted June 26, and consists of the following members: M. Johan Sverdrup, Minister of State, with residence at Christiania, and Minister of Marine; M. Daae, Minister of War; M. Sörensen, Minister of Justice; Deputy Arctander, Minister of the Interior; Deputy Haugland, Minister of Finance; Prof. Blix, Minister of Public Worship; Consul-General Richter, Minister of State in Stockholm; Deputy Jacob Sverdrup and M. Stung, Councilors of State to reside at Stockholm. The new ministry is not composed entirely of the Radical element, but contains five Liberals of the former Left Center, viz., Richter, Daae, Sörensen, and Stung.

SWITZERLAND, a federal republic in central Europe. The legislative and executive authority of the confederacy is vested in the State Council, composed of 44 members, chosen by the twenty-two cantons, and the National Council or Nationalrath, chosen by direct election at the rate of one member for every 20,000 inhabitants. Every male citizen over twenty years of age is a voter. Clergymen are not eligible. The Chambers united form the Federal Assembly. The executive authority is delegated to the Bundesrath, or Federal Council, consisting of seven members, chosen for three years by the Federal Assembly. The President and Vice-President of the Federal Council are elected by the Federal Assembly for one year, and are not eligible for the next consecutive term. (For statistics of area and population, see "Annual Cyclopædia" for 1883.)

The following cities contained over 40,000 inhabitants: Geneva, 50,043, with suburbs 68,320; Zurich, 25,102, with suburbs 75,956; Basel, 61,399; Bern, 44,087.

Finances.—The total receipts in 1883 amounted to 50,456,186 francs. The revenue from taxes on capital and lands was 675,674, from the interest on invested capital and subventions 205,741, from customs 20,121,994, from the post-office 15,254,796, from telegraphs 2,692,675, from the powder monopoly 595,187, from the mint, including new coinage issues, 6,054,481, from the Federal stud 194,074, from war materials 1,021,271, from the laboratory, etc., 1,761,922, from the military administration 1,636,347, from the various departments 240.532, unforeseen 1,492 francs.

The total expenditures were 50,033,764 francs in amount, of which 1,869,167 francs were for interest and payments of capital, 774,235 for general administrative expenses, 5,504,239 for the departments, 13,714,080 for the army, 1,636,127 for the customs service, 14,008,973 for the post-office, 2,334,491 for telegraph and telephone service, 507,712 for the powder manufacture, 6,054,481 for the mint, 501,850 for the polytechnic school, 183,215 for the stud, 1,011,956 for war materials, 1,682,960 for the laboratory, etc., 137,824 for railroads, and 112,454 unforeseen.

The expenditures for 1884 were fixed in the budget at 45,193,000, and the revenue at 45,128,000 francs. The budget for 1885 makes the total income 45,972,000 and the expenditures 46,050,000 francs. The supplementary credits are likely to swell the deficit to 600,000 francs. The Federal expenditures are larger under the new laws and requirements than the normal revenue.

The general assets of the Confederation are 44,457,923 francs in amount, and special funds 7,858,271, making the sum of 52,316,194 francs. The public loans amount to 35,594,236 francs. The assets above this amount, and the currency reserve and coupons due were 16,721,958 francs on the 31st of December, 1883.

The total receipts of the cantons in 1876 amounted to 39,743,726 francs, the expenditures to 44,103,073 francs, their total assets to 456,267,202 francs, their debts to 252,793,373.

Commerce.—The custom-house authorities take account only of the quantities of most of the exports and imports. The imports of articles free of duty in 1883 were 2,949,723 metric quintals, the exports 717,322; the imports of articles of food, drink, groceries, and tobacco 5,873,693 quintals, exports 484,220; imports of animals and animal products 95,758, exports 63,315 quintals; imports of earth and minerals 592,506, exports 205,658 quintals; imports of textile materials, straw, rubber, etc., 548,317, exports 347,582 quintals; imports of wood and manufactures thereof 1,833,085, exports 178,059 quintals; imports of glass and crockery 313,015, exports 121,236 quintals; imports of paper, books, art objects, etc., 52,689, exports 41,601 quintals; imports of hardware, etc., 44,543, exports 24,731 quintals; imports of drugs, dyes, and chemicals 839,498, exports 222,076 quintals; imports of gums, plants, etc., 7,488,218, exports 329,510 quintals; total imports of articles taxed by weight 21,710,629 quintals, total exports 3,048,346. The value imported of cars, machines, and other articles paying ad valorem duties was 1,515,828 francs. The value of timber and charcoal exported was 7,764,821 francs. The number of head of cattle imported was 254,548, exported 120,431. The imports of goods of the first category from Germany were 13,089,578 quintals, from France 5,726,984, from Austria 1,794,673, from Italy 1,099,394; the exports to Germany 1,294,862, to France 1,142,345, to Italy 334,581, to Austria 276,558 quintals.

Railroads.—The length of railroads in operation at the close of 1882 was 2,829 kilometres, their capitalized value 1,030,053,389 francs, the cost of construction 948,918,419 francs, the receipts in 1882, 69,445,665 francs, the expenses 35,917,699 francs.

The Post-Office.—The number of letters and cards forwarded in 1883 was 86,137,285, 58,029,077 internal and 28,108,208 international. The number of passengers transported in the mail-coaches was 751,008. The receipts amounted to 15,254,796 francs, the expenses to 14,008,973 francs.

Telegraphs.—The length of lines belonging to the state at the end of 1883 was 6,832 kilometres, of wires 16,554. The number of internal messages was 1,750,045, of foreign messages 836,038, the receipts 2,511,462, expenses 2,334,491 francs.

The Army.—The Federal army is composed of the regular army, or Bundesauszug, made up of young men between twenty and thirty-two years of age, and the Landwehr, which comprises all between thirty-two and forty-four years of age. The effective on Jan. 1, 1884, of the regular army was 118,688 officers and men and the Landwehr 88,136.

Elections.—In the election for the National Council, held Oct. 26, most of the sitting members were re-elected, and the proportion of the parties remained the same, notwithstanding the success of the Conservatives and Ultramontanes in securing a majority in various referendums during the preceding two years. All the members of the Federal Council retained their seats in the Assembly. The Liberals and Radicals have about double the number of votes in the Assembly possessed by the Conservatives and Clericals. The election of the Federal Council took place Dec. 5. All the members were re-elected. Dr. K. Schenk, of Canton Bern, the Vice-President in 1884, succeeded in the regular routine to the Presidency. Dr. A. Deucher, of Thurgau, was elected Vice-President, F. Ringier was again chosen Chancellor; and G. Olgiati, the previous Vice-President, succeeded to the Presidency of the Federal Tribunal. The administrative departments were assigned to the Federal Councilors on Dec. 12, as follows: President, Schenk; Deputy, Deucher; Interior, Deucher; Justice and Police, Ruchonnet; Military, Hertenstein; Finance, Hammer; Commerce and Agriculture, Droz; Posts and Railroads, Welti.

Politics and Legislation.—In the early part of the year the country was excited over a referendum that was set on foot by the Conservative organization of the Federal Association for the rejection of four acts of the Federal Assembly. One provided for a reorganization of the Department of Justice, one for an allowance to the minister in Washington for clerk-hire, one for the removal of cases involving the political opinions of the accused from courts presided over by partisan judges, and one for the repeal of the tax on commercial travelers. These laws were vetoed by the popular vote, by a majority of 50,000, on the 11th of May. In consequence of the criticisms on the institution of the ministry at Washington of which he was the first incumbent, and of the attacks upon his character and services, Colonel Frei, whose expenses in Washington exceeded the 50,000 francs allowed him, resigned his post. In Basel a cantonal enactment excluding members of religious orders from the occupation of teaching was approved in a popular referendum, Feb. 24, from which the Catholic authorities appealed to the Federal Council. The National Council and State Council agreed in 1884 upon the provisions of a new tariff which was under discussion for two sessions.

Religious Affairs.—Two conventions were signed in the beginning of September between the representatives of the Swiss Government and the Holy See. One re-establishes the diocese of Basel, and the other places Ticino under an Apostolic Vicariate.

Representatives of the cantonal governments of Vaud, Neufchâtel, and Bern, at a conference in Bern, decided on a common policy toward the Salvationists, which consisted in allowing and protecting private meetings, while maintaining the interdict upon public exercises. Subsequently the Bern authorities issued a decree forbidding all exercises of the Salvation Army in the canton.

The agents of the Mormons of Utah have been active in Switzerland recently. In the autumn of 1884 the inhabitants of one village went over to the new religion in a body. The missionaries, who had their headquarters at Bern, were closely watched by the police.

The Drink Question.—The drinking of brandy and absinthe has increased so fast in the past ten years, that the Federal Council decided to make a thorough investigation of the subject, with a view to remedial measures. The imports of wines increased from 202,555 quintals in 1851 to 803,969 quintals per annum during the three years ending with 1882. The imports of spirits, averaging 35,588 quintals in 1851–'55, are now 130,000 quintals. The domestic production of wine has greatly diminished of late years, owing to bad seasons, and the production of cider in a still higher ratio. This falling off in the native production, with the increase in price and deterioration in quality of the French wines, is assumed to be the reason of the increased consumption of spirits.

Conflict with the Canton Ticino.—A new conflict of authority arose in November between the Federal Council and the government of the Canton Ticino. The cantonal authorities ordered the municipality of Lugano to restore to the electoral register the names of certain citizens that had been removed. Upon refusal, they ordered gendarmes to take possession of the town-hall, and imposed a fine. A plot of ground belonging to Municipal Councilor Endelin was sold under an execution. The Federal Council ordered a suspension of proceedings, and threatened to send Federal troops to occupy the canton. After the arrival of a Federal commissary with soldiery, the Executive Council of Ticino directed that the sale of Councilor Endelin's property be annulled, but the disturbed owner and the purchaser, a relative of Endelin, both demanded damages.

Expulsion of Anarchists.—In the summer the Swiss Government began to reverse its policy of extending asylum to revolutionary exiles. Neve and Kaufmann, two influential anarchists, the widow of Stellmacher, and others, were arrested in Zürich for circulating pamphlets treating of the execution of Stellmacher. When tried in November, the prisoners were all acquitted. In the latter part of September the artist Gerhard was arrested, but was released again; in Zürich and in Liesthal the German anarchists Robert Pfau and Anton Büchler were condemned to three months' imprisonment, and Theodor Weiss to six months. Their offense was posting socialistic placards in the streets. The last-named, thinking to escape punishment, informed the authorities that he was a spy, employed by the Police Inspector of Berlin. The law officers ascertained it to be a fact that he was an *agent provocateur* who had posed as a Socialistic leader in Berlin and Elberfeld, as well as in Switzerland, and treated it as an aggravating circumstance. Indignation was expressed in the public press at the employment of German and Russian spies in Switzerland. Six anarchists condemned at Zürich for conspiracies against their respective governments were acquitted by the Supreme Court, and extradition was denied, yet three of them, an Austrian and two Germans, were expelled the country.

Withdrawal from the Latin Union.—Switzerland has suffered monetary inconvenience from a dearth of small coins, and accordingly requested France and the other members of the monetary league to sanction an increase of her token currency. The treaty allows six francs per head of the population, about half the proportion coined in Germany. The 18,000,000 francs sanctioned by the treaty have all been issued, and another million was considered desirable, since Italy refused to revoke the convention prohibiting the circulation of Italian silver coins pending the resumption of specie payments. France was also requested to redeem her light gold pieces. Both demands were negatived by the French Government, upon which the Swiss Government in June, 1884, gave notice of the termination of the treaty. The treaty was concluded Dec. 23, 1865, and runs till the close of 1885, after which it is renewed from year to year, any of the contracting states having the right to withdraw on a year's notice.

International Conferences.—A conference for the protection of literary and artistic property was held at Bern in September. A draft of a treaty based on the proposals of the Swiss Federal Council was approved by the delegates.

The International Peace and Arbitration Association met at Bern in August and discussed arbitration, the neutralization of interoceanic canals, the Congo Association, etc.

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TANNO-CANNABINE. See Drugs, New.

TASMANIA. See page 60.

TENNESSEE. **State Government.**—The following were the State officers during the year: Governor, William B. Bate, Democrat; Secretary of State, D. A. Nunn; Treasurer and Insurance Commissioner, Atha Thomas; Comptroller, P. P. Pickard; Attorney-General, B. J. Lea; Superintendent of Public Instruction, T. H. Paine; Commissioner of Agriculture, Statistics, and Mines, A. J. McWhirter; Register of Lands, W. S. Winbourn; Railroad Commissioners, John H. Savage, G. W. Gordon, and J. A. Turley. Judiciary, Supreme Court: Chief-Justice, James W. Deaderick; Associate Justices, William F. Cooper, Thomas J. Freeman, Peter Turney, and Robert McFarland.

Finances.—The receipts, from all sources, for two years ending Dec. 19, 1884, inclusive, were $2,346,353.94, which includes a balance of $246,790.76 turned over by the M. T. Polk investigating committee. This total also includes the net amount of revenue paid into the treasury by the State's attorneys on back-tax collections, $157,401.64. The disbursements for the two years ending Dec. 19, 1884, amount to $1,701,139.11, leaving a balance in the treasury at that date of $645,214.83. This balance ($645,214.83) includes $139,473.80 of new issue of Bank of Tennessee certificates, and old issue Bank of Tennessee money, which leaves $505,741.83 in actual available funds in the treasury, less $21,141.41 in controversy in the Mechanics' Bank of Knoxville.

The appropriations (for two years) drawn up to Dec. 19, 1884, amount to $1,766,207.15.

The obligations of the State provided for under the terms of the law relative to the settlement of the State debt (act of 1883), at the time the work of funding began in July, 1883, amounted to $28,786,066.39, including principal and interest. Of this amount the "State debt proper" bonds amount to $2,135,150; educational, charitable, and other bonds, that along with "State debt proper" bonds are, by the act of 1883, 6 per cent. bearing bonds, amount to $648,000, making $2,783,150 on which the State will have to pay 6 per cent. interest. Deducting this latter amount ($2,783,150) from the total bonded indebtedness ($28,786,066.39), leaves $26,002,916.39, and taking 50 per cent. thereof (principal and interest), there will remain $13,001,458.19, upon which the State will have to pay 3 per cent. interest. This makes the total bonded indebtedness of the State under the operation of the act of 1883, about $15,784,608.19.

The Funding Board.—The Funding Board began its operations in July, 1883. Since that time, the bonds funded amount to $8,090,215.39, leaving Jan. 1, 1885, $20,695,851.

For the amount funded there were issued: 6 per cent. bonds, $582,100; 5 per cent. bonds, $317,100; 3 per cent. bonds, $3,445,300.

A cause of financial embarrassment to the State has grown out of the "Torbett Issue," or notes of the old State Bank, issued principally during the war, which the State is constrained under a decision of the Supreme Court of the United States to receive for taxes; under the direction of the last Legislature the sum of $200,000 annually is taken up in taxes.

Resources.—The Comptroller's report shows that the total value of taxable property in the State in 1883, not including railroad property, amounted to $222,637,873—a total net increase for the year of $708,060. For 1884 the total value of taxable property in the State, not including railroad property, amounted to $226,844,184—a total net increase over the previous year of $4,206,311. This is largely attributable not only to the increased value of property, but also to superior vigilance in assessing.

Railroads.—On Sept. 19, 1883, the total mileage of railroad in the State was 2,032, of an aggregate assessed value of $31,547,299.23. Their average value per mile was $15,521.42; increase of mileage over last report, nine and a fraction miles; increase of value over last report, $4,531,199.11. On July 17, 1884, the assessors returned the total number of miles of railroad in the State at 2,094, of an aggregate assessed value of $34,350,170.84. Their average value per mile for this year was $16,400.17; increase of mileage over assessment of 1883, sixty-two miles; increase of value over assessment of 1883, $2,802,871.61. The Legislature, on March 29, 1883, passed a bill providing for the regulation of railroads, which received the approval of the Executive, and three commissioners were appointed. The authorities of certain railroads, conceiving that their rights and interests were invaded, caused legal proceedings to be instituted in the Federal court, to restrain the commissioners from further alleged interference with them. The Hon. John Baxter, in the decision rendered in these cases, found the commission bill defective. Having been appealed, the matter must await final action by the Federal Supreme Court.

Penitentiary.—According to the provisions of the act of the General Assembly, passed March 28, 1883, the penitentiary property and labor were leased for six years, from Jan. 1, 1884, to the Tennessee Coal, Iron, and Railroad Company as lessees, for $101,000 per annum, payable quarterly. There were 1,324 on the prison-rolls Dec. 1, 1884. From 1872 to 1884 the total amount received by the State was $591,617.02. The buildings and machinery that were destroyed by fire in 1882, not being insured, cost, with other repairs for that year, $78,874.49.

Judiciary.—On this subject the Governor says:

> In my first message to the Forty-third General Assembly, I called their attention to the overcrowded condition of the Supreme Court docket. The act approved March 30, 1883, authorized the appointment, in each grand division of the State, of three persons, who should compose a commission of referees, to whom the Supreme Court might, by rule made in vacation or term time, refer such civil causes (except revenue causes) as were then pending in said court at any time prior to Jan. 1, 1885, at Jackson, Knoxville, and Nashville for investigation. Referees were accordingly appointed, on or about May 15, 1883, at once entered upon their duties, and have been active, vigilant, and faithful. At Knoxville and Jackson, the referees have so nearly finished the business referred to them, that they can complete it by the expiration of the two years from the date of their appointment, but at Nashville, owing to greater amount of business, the referees have not been able to finish it. Up to Dec. 1, 1884, the referees at Nashville tried and reported on 915 causes, bringing the docket down to Jan. 1, 1882. To 486 of these causes so reported on, no exceptions were filed, and the reports were confirmed by the Supreme Court from the bench without argument.

Elections.—The Governor recommends a registry law, and laws effecting greater uniformity and promptness in making the returns of the results of elections.

Public Schools.—While the enrollment of pupils has largely increased, and the average attendance in a still greater ratio, the cost of the system is greatly diminished, so that a large balance of the school revenue is left on hand. This balance is in the hands of the various county trustees, and in the judgment of the Governor such legislation should be had as will compel its more rapid disbursement for the use and efficiency of the schools. The Superintendent's report shows a marked increase in attendance upon teachers' institutes. The total amount of school funds received in the last scholastic year was $1,239,952.64, showing an increase over the previous year of $35,214.24. Reports show that the scholastic population for the year ending June 30, 1884, was—white, 420,997; colored, 150,832; total, 571,829. This is exclusive of three counties in which the scholastic population for the year preceding was—white, 12,630, and colored, 932. The entire school population at that time was, therefore, 585,391; an increase over the previous year of 23,895.

Deaf and Dumb.—The number of pupils admitted to the white department of the institution during two years is 151; average attendance, 100; admitted to the colored department in two years, 25; average attendance, 17.

Blind Asylum.—This institution has sixty-one white and eight colored inmates. Besides literary education, many are securing industrial educations. The ordinary expenses for the last two years have averaged $12,656.15, and the sum of $7,515.08 has been expended for extraordinary improvements. Of the 2,026 blind in the State, there are about 212 persons within the limits of the age of admission, of whom only 69 are in the asylum.

The Insane.—The Tennessee Hospital for the Insane had 412 patients on Dec. 19, 1884, four more than at the same date two years ago, with an average attendance of 400. The number of State charity patients, as fixed by the laws of admission, is in excess, chiefly due to the mandatory commitment of insane persons under criminal indictment. The hospital receipts amounted to $147,932.55, and disbursements for ordinary support of patients were $138,945.69, leaving a balance on hand, Dec. 19, 1884, of $8,986.86. The cost per patient per annum was $173.68.

The State has purchased the site known as Lyon's View, near Knoxville, for an East Tennessee Insane Asylum. At its last session, the Legislature appropriated $80,000 in aid of the erection of such an institution at that point, of which $69,000 have been expended. The asylum, when completed, will accommodate from 250 to 300 patients.

Political.—The Republican candidate for Governor was Frank T. Reid, an ex-Confederate soldier. For Railroad Commissioners, the Republicans nominated A. M. Hughes, Jr., W. W. Murray, and M. J. Condon. The Democrats renominated Gov. Bate and the Board of Railroad Commissioners. On November 4, the Republican vote for Presidential Electors was 124,078; Democratic, 133,258; others, 2,082. By geographical divisions the vote was as follows:

DIVISIONS.	Republican.	Democratic.
East Tennessee	49,089	30,800
Middle Tennessee	38,083	62,389
West Tennessee	36,906	40,069

For Governor, the vote was: Democratic, 132,201; Republican, 125,276; Democratic majority, 6,925. The Republican candidates for Railroad Commissioners were elected, they receiving 121,787 votes, while the Democratic candidates received but 113,185; Republican majority, 8,602. Three Republican (First, Second, and Tenth Districts) and seven Democratic Congressmen were elected, but the Democratic majority in the Third District was only 68. The Legislature of 1885 consists of 19 Democrats and 14 Republicans in the Senate, and 63 Democrats and 36 Republicans in the House.

Minerals.—Coal covers 5,100 square miles, all of which has at least one coal-bearing seam, a large proportion more than two, and a considerable area five or more. There are twenty-three coal-mines in operation. Complete returns for 1884 are wanting. In 1882 fifteen mines reported an output of 850,000 tons. Copper is mined at Ducktown, Polk county.

In iron-ores Tennessee is greatly favored, and often coal, iron-ore, and limestone are found in close proximity. The black magnetic, hematite, and limonite appear at intervals throughout East Tennessee. West of Nashville, in the counties of Stewart, Montgomery, Houston, Dickson, Humphreys, Perry, Hickman, Lewis, Wayne, and Lawrence, limonite, a hydrate ore with yellow powder, extends over an area forty miles wide, from Kentucky to Alabama. This was the most extensive field for the making of charcoal-iron before the war. As many as eleven furnaces in those days were in full blast in the single county of Montgomery, but to-day only three are running.

Zinc is being mined in the counties of Jefferson, Union, Knox, and Claiborne. A very rich deposit of zinc-ore has been recently discovered near Union Depot, Sullivan county.

The white and variegated marbles of Hawkins, Knox, Blount, and Bradley counties, East Tennessee, have become quite celebrated. Discoveries of variegated, gray, and brown marbles have recently been made in Franklin, Lincoln, Lawrence, and Maury counties, Middle Tennessee; and also in Decatur and Henry counties, West Tennessee.

A very rich deposit of ochre has been discovered near Ripley, Lauderdale county.

Timber.—No State in the Union possesses a larger area of forests of hard-wood, in proportion to its aggregate area, than Tennessee. Nashville has the credit of exporting more hard-wood than any city in the Union. The cottonwood, found in great abundance in the bottom-lands of West Tennessee, offers an inviting field to paper-pulp manufacturers.

TEXAS. State Government.—The following were the State officers during the year: Governor, John Ireland, Democrat; Lieutenant-Governor, Marion Martin; Secretary of State, J. W. Baines; Treasurer, Frank R. Lubbock; Comptroller, W. J. Swain; Attorney-General, John D. Templeton; Superintendent of Public Instruction, B. M. Baker; Commissioner of Lands, W. C. Walsh; Commissioner of Insurance, Statistics, and History, H. P. Brewster; State Engineer, James H. Britton. Judiciary, Supreme Court: Chief-Justice, Asa H. Willie; Associates, J. W. Stayton, C. S. West.

Financial.—The close of the fiscal year ending Aug. 31, 1884, gives the results of two years' operation of the State government with the rate of taxation at 30 cents on $100, of which 22½ cents was for general purposes, and 7½ cents was for public free schools. In 1882 the rate of taxation was reduced from 40 cents on $100, and a revenue poll-tax of $1, to 30 cents and a poll-tax of 50 cents. At the beginning of the first year under the reduced rate there was in the treasury a revenue surplus of $526,545.26; at the close of the year the surplus was reduced to $345,154.23; and at the close of the second year, Aug. 31, 1884, the surplus was further reduced to $145,298.26, showing that the expenditures during the two years ending Aug. 31, 1884, exceeded the receipts during the same time $381,247.

The transactions in the general revenue account for the year were as follow:

Balance, Sept. 1, 1883	$345,154 23
Net revenue receipts	1,538,913 28
Total	$1,884,067 51
Expenditures	1,738,769 25
Balance of revenue Aug. 31, 1884	$145,298 26

The Comptroller thinks that the issue of revenue deficiency bonds will be necessary. He recommends that the appropriation year, which now ends on February 28, be made to coincide with the fiscal year, which ends on August 31. The special warrants (other than on the general revenue account) drawn by the Comptroller on the Treasurer, for the year ending Aug. 31, 1884, amounted to $3,831,516.63. Of these there were, on account of the available school fund, $1,484,490.54; available university fund, $123,171.88; permanent university fund, $207,929.80; permanent school fund, $1,744,869.43; the balance, on account of other special funds. The bonded debt of the State Aug. 31, 1884, amounted to $4,119,898.82, of which the special funds of the State hold nearly two thirds and individuals about one third. The cash balances in the treasury to the credit of the various funds, Jan. 1, 1885, amounted to $552,142.73 (general revenue account, $106,364.31). The balances in bonds aggregated $6,309,939.25, of which the permanent school fund held $5,409,084.75; permanent university fund, $513,761.63; Agricultural and Mechanical College fund, $209,000. The assessed value of property in 1880 was $311,470,736; in 1881, $357,000,000; in 1882, $419,925,476; in 1883, $527,537,390; in 1884, $603,060,917.

Education.—While the usual increase in the number of children of scholastic age has been largely augmented by the Legislature at its extra session adding two years to the scholastic age, the fund at the disposition of the Board of Education has grown in greater proportion. There has been the most marked improvement in the character, attainments, and efficiency of our public-school teachers. The Sam Houston Normal Institute (at Huntsville) began its sixth session on Sept. 15, 1884, and will close it on June 10, 1885. At this time it has 165 students.

The State students number five from each senatorial district, and four at large.

The Prairie View Normal School is in excellent condition, and is doing a good work for the colored people. During the summer of 1883 a summer normal institute was maintained in each senatorial district for white, and one in each congressional district, except the eleventh, for colored teachers. The same number were maintained during the summer of 1884.

Of fifty-one cities and towns having control of the public schools within their limits, only seventeen made reports to the Educational Department for the year ending Aug. 31, 1883, and of fifty-one, only thirty-four made reports for the year ending Aug. 31, 1884. The public schools in the cities and towns have been eminently successful. Seventeen cities and towns have assumed control of their schools since the apportionment for the year 1883–'84.

The following are statistics for the year ending Aug. 31, 1884:

COUNTIES.		Counties reporting.
Number of white school communities organized	4,860	128
Number of colored school communities organized	1,547	99
Total	6,407	..
Number of white schools maintained.	4,246	189
Number of colored schools maintained	1,432	94
Total	5,678	..
White scholastic population reported by communities	156,751	129
Colored scholastic population reported by communities	59,191	98
Total	215,942	..
White children enrolled in school, and receiving tuition free of charge	130,727	130
Colored children enrolled in school, and receiving tuition free of charge.	50,098	98
Total	180,825	..
Children paying tuition	37,594	90
Average school term.	5 months.	115

CITIES.		Cities reporting.
White schools maintained	153	37
Colored schools maintained	55	37
Total	208	..
White children of scholastic age enrolled, and receiving free tuition	17,912	38
Colored children of scholastic age enrolled, and receiving free tuition	6,062	38
Total	23,974	..
Children not of scholastic age enrolled in school	2,502	30
Average school term	8$\frac{1}{35}$ mos.	35
Children of scholastic age who have not attended school	11,189	23
White children of scholastic age unable to read at end of term	111	17
Colored children of scholastic age unable to read at end of term	283	17
Total	394	..
Paid teachers from city funds	$152,326 19	33
Paid teachers from private funds	35,228 74	17

The University of Texas has 13 (2 in law department) instructors, and in 1883–'84 had 219 students (169 academic and 50 law). It is endowed by the State. The Agricultural and Mechanical College of Texas, near Bryan, Brazos county, has 9 instructors and 136 students.

Penitentiaries.—The State has two penitentiaries, one at Huntsville and the other at Rusk, the latter recently organized. The penitentiaries and convicts were leased to contractors prior to May 15, 1883, when the State assumed control. At that time the convicts were distributed as follows: At Huntsville, 419; at Rusk, 277; on railroad construction trains, 662; on Brazos farms, 949.

The number of convicts Dec. 24, 1884, was 2,632. On Nov. 1, 1884, the 2,539 convicts on hand were located and employed as follows: At Huntsville, 660; at Rusk, 555; on railroad construction, 176; on farms, 1,148; total, 2,539.

The total amount received from all sources from May 16, 1883, to Nov. 1, 1884, was $584,438.49; the amount paid out, from May 16, 1883, to Nov. 1, 1884, was $569,242.45.

Charitable Institutions.—The Deaf and Dumb Asylum has 9 teachers and about 120 pupils. The Institution for the Blind has 100 pupils. These, together with the State Lunatic Asylum, are in Austin. The North Texas Lunatic Asylum, near Terrell, Kaufman county, is approaching completion.

Railroads.—The following is a summary of the railroads of the State:

		Increase in 1884.
Miles of railroad (including side-tracks)	6,787·50	272·26
Miles of wood bridges	157	2·30
Miles of combination bridges	2·50	..
Miles of iron and steel bridges	5·50	..
Locomotives	681	80
Passenger-cars	344	75
Baggage, express, and mail cars	181	29
Freight-cars	17,004	3,762
Other cars	212	212
Miles of steel rails in main track	2,784·15	540·95
Miles of iron rails in main track	3,278·45	....

Political.—The following were the State tickets of the Democratic and Republican parties:

	Republican.	Democratic.
Governor.	A. B. Norton	John Ireland.
Lieut.-Governor.	John L. Haynes	Barnett Gibbs.
Treasurer	Samuel M. Johnson	Frank R. Lubbock.
Comptroller	Frederick W. Miner.	W. J. Swain.
Attorney-Gen'l.	L. C. Grothaus	John D. Templeton.
Land Com'r.	R. J. Evans (col.)	W. C. Walsh.
Sup't Pub. Ins.	H. B. Kinney	B. M. Baker.

For Governor, George W. Jones was the candidate of the Greenbackers and Independents, and he obtained a large portion of the Republican vote. On the 4th of November the Democratic ticket was elected by large majorities. The vote for Governor was as follows: Ireland, 212,234; Jones, 88,450; Norton, 24,557. The Democratic vote for Lieutenant-Governor was 236,685; Republican, 51,387. The average vote for Presidential Electors, as officially declared, was: Democratic, 222,652; Republican, 88,745; Prohibition, 3,368; Greenback, 3,297. The returns from El Paso and San Jacinto counties, received after the official count, raised the Democratic vote to 224,210, and the Republican vote to 90,156. No returns for Presidential Electors were received from Oldham and

Upshur counties, which cast 1,549 Democratic and 502 Republican votes for State officers. Eleven Democratic Congressmen were chosen. The Legislature of 1885 contains but six Republicans.

THEISTIC CHURCH. The Theistic Church was begun as a religious meeting under the preaching of the Rev. Charles Voysey in 1871, and was formally organized under its present name in 1880. It points for the ancient expressions of its faith principally to the Psalms and prophetic books of the Hebrew Scriptures; and for other utterances of its beliefs to the devout words of non-Jewish races, Brahmans, Parsees, Greeks, and Romans, in the Rig-Vedas, Zendavesta, and the writings of Plato, Socrates, Epictetus, Seneca, Marcus Aurelius, and Cicero. "As a modern sect, it aims at something more than the revival of the ancient natural religion. It seeks more exact definition, more trenchant elimination of detected error; and, above all, endeavors, by clearly laying down the rational basis for its belief, to promote the highest virtue and the most genuine religious feelings toward God." It is a special feature of its school "to hold no man, however distinguished or good, and no book, however venerable or valuable, in the light of an authority, or in the position of a unique supremacy." The leading principles of theism are:

That it is the right and duty of every man to think for himself in matters of religion.

That there is no finality in religious beliefs; that higher and higher views of God and of his dealings are always possible; and therefore it is to be expected and wished that future generations will improve upon the creed now held by theists.

That it is our duty to obtain the highest and purest truth possible; and, when it is discovered, to proclaim it honestly and courageously. In like manner, to denounce all detected error.

That personal excellence of character is necessary to a right knowledge of the goodness of God: religion is thus based upon morality, and not morality upon religion.

That theism is not aggressive against persons, but only against erroneous opinions.

That theism recognizes the value of all moral and religious truth, wheresoever it may be found.

The beliefs of theism may be thus briefly expressed:

That there is one living and true God, and there is no other god besides him.

That he is perfect in power, wisdom, and goodness, and therefore every one is safe in his everlasting care.

Therefore that none can ever perish or remain eternally in suffering or in sin; but all shall reach at last a home of goodness and blessedness in him.

That as we have been created for this goodness, it is our wisdom and duty to be as good as we can, and to shun and to forsake all evil.

Though the grounds on which their belief is based are found in ancient scriptures, theists do not rely on external authority for their belief, but find independent reasons for it. They base it on the ground of the nature of man—on the reason, the conscience, and the affections—and hold that these three parts of man's nature are feeble reflections of the living God who made men what they are, and that it is possible and reasonable to reason up from the less (the nature of man) to the greater (the nature of God). The theistic liturgy is a revision of the old Prayer-Book of the Church of England, with everything omitted that does not harmonize with theistic faith and principles. The Psalter is shortened, and all maledictions are left out. The book is furnished with two or three alternative services, service of duty, service of benediction, service of praise and thanksgiving; also with a service for the dedication and benediction of children, a service of matrimony, and a service for burial or cremation, which are original. Fifty hymns are appended to it, gathered from all sources, and some original hymns by theists. The book also contains family prayers. The whole worship is designed to cultivate entire trust in God and adoration of his goodness, and to quicken and fortify all virtuous effort. It is the usual custom to read two lessons, selected from ancient or modern writers. The Bible is sometimes read, and the minister has also read from hundreds of devotional books, by authors of all creeds, "from Marcus Aurelius to St. Thomas à Kempis, and from St. Thomas to James Anthony Froude." The minister officiates in the usual surplice of the Church of England, whose orders he still retains.

TOBOGGANING, a Canadian sport, which consists in sliding down natural declivities or artificial "slides," on a sled without runners, of Indian origin, and called by the American Indians *odabaggan*, from which we have the modern corruption "toboggan."

The toboggan is made of a strip or strips of some tough, fibrous, and elastic wood, from one eighth inch to one quarter inch in thickness. It may be from three to seven feet in length (the rule for racers is one foot higher than the head of the steerer as he stands with his toboggan plumb), and from one to two feet in breadth. It is ribbed across at intervals on its upper side for strength, turned up at its front end until it curls to a half circle, and along each side, firmly lashed with deer-thongs to and on top of the ribs, are the hand or side rails, which extend the whole length of the toboggan. To these the riders cling, or down to them the load is lashed for transportation. It may or may not be cushioned, but it should always be provided with a cushion, which is firmly secured to the side-rails, when used for tobogganing.

The toboggan is of very ancient origin, doubtless going far beyond the historic period. But until very recent times it was used only for the transportation of burdens over the deep northern snows, and when so used was drawn by men or by dogs. The invention of the toboggan was just such a one as would naturally be evolved by a people with such environment as is found in Canada and other parts of the North American Continent. Long winters, with no roads or passable trails except over the trackless wastes of snow, necessitated just such a contrivance as we find in the light, strong sled that skims over the surface of the deep snow, even when heavily laden, and is admirably adapted to this end. The original toboggan was put together with deer-thongs only, no metal fastenings being used until very recently, and most of the Canadian toboggans to-day are so constructed; but in the United States copper burs and rivets are preferred to rawhide for fastenings. The elasticity, durability, and cheapness of the rawhide are more than offset by the superior durability and strength attained by the use of the copper fastenings. As originally constructed, toboggans were built of basswood or of birch; but the best are now made of white-oak, hickory, or iron-wood, and some for racing are even built of steel. A fine-grained, tough, and elastic wood, with long fiber, is the best for this purpose. Perhaps well-seasoned white-oak has been found most satisfactory, for this species of oak admits of a glassy polish, which it retains after hard usage, and it is sufficiently elastic, though not so elastic as hickory. It is not so simple a matter as it seems to construct a fast toboggan: the makers have their trade-secrets, and some are much more successful than others. American makers have equaled their Canadian rivals in points of speed, strength, and gracefulness of contour-lines.

In all the early campaignings by European troops in Canada and the northern portions of the United States, we read of the soldiers transporting their kits and the other lighter impedimenta of camp-life by means of these Indian sleds, which were dragged by dogs, or by men on snow-shoes, over the crust of the deep snows. We read of their employment by the troops of Courceles, of Tracy, of Montcalm, and also by the Brunswickers under Baron Riedesel during the winter they passed in Canada awaiting Burgoyne and the British army under his command. The French military writers of that period speak of them as *train sauvage*, and they still bear this name in France.

The toboggan has been used from time immemorial in the chase, for transporting to camp the spoils of the hunt, thus supplementing the snow-shoe and enabling the sportsman to move the carcasses of the heavier animals, as the moose, the caribou, the bear, and the deer. The toboggan was utilized by the squaws in winter as the means for hauling their papooses through the woods in journeying.

The use of the toboggan as a vehicle of pleasure is modern, dating back only a few decades. At first it was used for coasting over natural slopes. But the artificial slide has taken the place of the natural for various reasons, principally because the *cahots*, or jouncing-places, can thus be avoided, and "slides" can be erected almost anywhere. The artificial slide is of Russian origin, and has been in vogue in Russia for coasting with sleds for more than a century. The "slides" are there called "ice-mountains," and may be single or double. When double, they are placed opposite one another, the two tracks parallel, and a few feet removed from each other laterally. The impetus acquired on one "ice-mountain" carries the rider abreast of the other, and he has only to ascend the steps in order to ride back to the foot of the tower whence he started. The ice-mountain or slide is built of heavy timbers strongly braced, and of varying height. The Tuque Bleue Slide of Montreal, and the Woodlawn Park Slide of Saratoga, are forty feet high by about one hundred and twenty feet long. Some of the Canadian slides are higher; usually these slides are built on side-hills, thus getting the added advantage of the natural grade. The toboggan starts from a horizontal bed at the top of the slide, and runs in a trough, technically known as a chute, which is usually two feet wider than the toboggan itself, and is guarded by flaring boards at each side, so that it is impossible for it to get out of the chute laterally. The chute, and indeed the entire track for a third of a mile, is carefully graded, and packed with snow, ridged up at each side, and then sprinkled with water until it becomes a glare of ice throughout its entire length. There may be several parallel chutes on the structure, and each chute with a track of its own. The double towers so much in vogue in Russia have not been popular on this side the Atlantic, although in the season of 1884–'85 they were used at the carnival in Montreal. The speed attained has been as great as a mile a minute. Tobogganing is not so dangerous as coasting. One is already as near as he can get to the earth, and in case of accident he is only rolled out in the snow.

The costumes worn by both sexes are made of soft, warm woolen blankets, usually of scarlet or blue, or some other bright color, and the effect at night is strikingly picturesque, as they are lighted up by the torches that line the tracks and chutes. The head is covered by a warm woolen *tuque* of some bright color, and the sash, of the same color, girts in the clothing as one goes flying through the air. The feet are incased in moccasins. Usually one gentleman and two or three ladies form the load of the toboggan. The steerer gets on last, and steers from the rear end of the toboggan. The old-fashioned mode of steering was by means of short pieces of hard wood held in each hand, which were applied to the track from time to time in steering the craft. But these are ruled off the well-kept slide of to-day, only the moccasined foot being permitted. Either foot may be used in steering; it is usual to use the right foot, but it is considered the acme of good tobogganing to be able to use either. Positions vary with individuals; some kneel and some lie on the side. The latter is the usual posture. Lie on the left side to steer with the right foot, using the toe pointed to the rear and the leg trailing well behind, is the better practice; although some steer with equal accuracy with the heel or sole of the foot, but not so gracefully. In short, the toboggan is steered just as the boy steers his sled in coasting. But the sled runs in grooves; not so the superficial toboggan, which is promptly responsive to the toe or heel. The toboggan attains great speed within a few yards of the start, which is not true of the sled.

The sport is most exhilarating and healthful, and serious accidents are very rare. The popularity of tobogganing is spreading. The sport has been in vogue in Saratoga for three or four years, coasting over natural slopes, but the first slide erected in the United States was put up there in December, 1884, in Woodlawn Park.

TODLEBEN, Count **EDUARD FRANZ IVANOVICH,** a Russian general, born in Mitau, May 8, 1818; died at the German watering-place of Soden, July 1, 1884. His father was a respectable merchant of Riga. The son showed an early inclination for the military profession, entered the School of Military Engineering at the age of fourteen, and was commissioned an ensign in 1836, but was obliged by a pulmonary complaint to leave the school twice and to be absent at the final examination, yet on account of his proficiency he was promoted in regular order and was assigned to the engineer division in Riga. In 1839 he was transferred to the grenadier sappers in the fortress of Dünaberg, and in 1840 to St. Petersburg, where he was promoted to a lieutenancy, where his ability obtained the recognition of Gen. Schilder. He was advanced to a captaincy at the age of twenty-seven, was ordered to the Caucasus in 1848, and served with distinction in the siege of Gergebil, the relief of Fort Akahta, and the storming of a fortified position near Miskendgi held by 10,000 of Shamyl's rebels. For his bravery on the latter occasion he was decorated with the Vladimir order of the fourth class. During the campaign of 1849 he conducted for four months the sap in the siege of Tshok, for which he received a sword of honor. Returning in 1850, he became Gen. Schilder's adjutant, and in 1851 was transferred to the engineer corps of the guards and intrusted with the execution of important works.

When the Crimean War broke out, Gen. Schilder summoned Todleben, who, after his chief was wounded, conducted the engineering operations at the siege of Silistria. Prince Gortchakoff, when he learned that the allies intended to attack Sebastopol, ordered Lieut.-Col. Todleben to report to Prince Menshikoff for duty. The commander in the Crimea was about to send him back, when Gen. St. Arnaud debarked at Eupatoria. Todleben's suggestions to build a bridge between the two parts of the city, and to close the channel with sunken ships, were then carried out. The admirals Korniloff, Nachimoff, and Istomin, who commanded during the absence of Menshikoff, furthered in every way Todleben's plans, and furnished men and materials to carry out the original project for the fortification of Sebastopol, approved by the Emperor Nicholas in 1837. The eight hills on the south side were to be crowned with bastions closed in the gorge and connected with walls. By employing infantry, sailors, and citizens, as well as sappers and engineers, the place was got into a good state of defense in a remarkably short space of time. When the enemy had mounted land-batteries and begun the bombardment on Oct. 17, 1854, Todleben was able to respond with an equally effective fire, which dismounted many French guns, and caused the plan of an assault to be abandoned. The Czar made him a colonel when the issue of the day's fighting was reported to him. He resorted after that to bolder tactics, and established, besides countermines

COUNT EDUARD FRANZ IVANOVICH TODLEBEN.

and auxiliary batteries, infantry positions from which Russian sharpshooters hindered the advance of the enemy's works. The temporary earthworks that had been thrown up with such speed on the south side of Sebastopol were thus held for eleven months. The defense was so brilliant and so courageous that it created the fallacious impression that earthworks are better than permanent fortifications. The Emperor Alexander II advanced Todleben to the brevet rank of major-general, bestowed the order of St. George of the third class, and had a tablet placed in his honor in the School of Engineers where he studied, then called the St. Nicholas Academy. On June 20, 1855, he was severely wounded by a musket-ball, and in consequence was spared the sight of the storming and fall of Sebastopol on September 8. The Czar approved Gen. Todleben's plans for the fortification of Nikolaiev, which was to take the place of Sebastopol as a naval harbor on the Black Sea. As adjutant of the Grand Duke Nicholas, who commanded the works, he conducted the work at the mouth of the Dnieper. Subsequently he was called to Cronstadt to superintend the completion of the fortifications against a naval attack. In the years succeeding the war he was very active in the newly created post of director of the engineer department of the Ministry of War. On April 29, 1860, he became a lieutenant-general, and a year later chief of staff to the Grand Duke Nicholas, inspector-general of the engineer service. From 1857 to 1860 he was much occupied with the composition of a great work on the "Defense of Sebastopol." He was promoted to be general of engineers Sept. 11, 1869, and afterward was made chairman of the commission for the reorganization of the siege-artillery. He gave lectures every year in the Engineering Academy on the plans of the principal fortresses, and directed the manœuvres of the sapper brigade. He composed a work on the general principles of the attack and defense of fortresses, and left materials for a work on mining tactics. He took many trips abroad to study the system of fortification in other countries, and was most pleased with the modern German manner. When the Turkish war of 1877 began, Gen. Todleben received no command in the field army, being passed over through army intrigues; but when two months were spent in vain efforts to carry Osman Pasha's improvised fortifications at Plevna, the Emperor ordered him to the seat of war to take a general advisory position in the direction of the operations. Under his direction the place was regularly besieged, the communications of the defenders cut off, and the garrison forced by lack of supplies to the brave effort of December 10, to break through the Russian lines, which was frustrated by Todleben's arrangement of rifle-pits, trenches, batteries, and redoubts, and the rapid concentration of the Russian artillery-fire and infantry forces which drove back the Turks and compelled the surrender of the entire army. Gen. Todleben, after performing other important services during the war, was intrusted on April 28, 1878, with the command of the army remaining in Turkey. After the conclusion of the Peace of Berlin he was appointed Governor-General of Odessa, April 7, 1879, made a hereditary count, and from 1880 to 1884 he was Governor-General of Wilna, Kovno, and Grodno.

TONIC SOL-FA. See Music.

TRAUMATICENE. See Drugs, New.

TUBERCULOSIS. See page 663.

TURKEY, an empire in Europe and Asia. The fundamental laws are derived from the precepts of the Koran and the Multeka. When not in conflict with the sacred Mohammedan laws, the will of the Sultan is absolute. The Constitution proclaimed by Abdul-Hamid, Dec. 23, 1876, is modeled upon European forms of government; but, like the previous Constitution of Sultan Abdul-Medjid, it has not been carried into effect. The reigning Sultan is Abdul-Hamid II, born Sept. 22, 1842, who succeeded to the throne upon the deposition of his brother Murad, Aug. 31, 1876.

The executive and legislative authority is exercised under the Sultan by the Grand Vizier, who is the head of the temporal government, and the Sheik-ul-Islam, who is the chief interpreter of the Koran and head of the Ulema, or council summoned to expound the laws.

The Grand Vizier is Said Pasha; the Sheik-ul-Islam, Ahmed Essad Effendi; the President of the Council of Ministers, Akif Pasha; the Minister of War, Ghazi Osman Pasha; the Minister of Foreign Affairs, Assym Pasha; the Minister of the Interior, Edhem Pasha. (For area and population, see "Annual Cyclopædia" for 1883.)

Commerce.—The total imports in 1880–'81 were valued at 1,784,750,000 piasters (1 piaster =4·3 cents), against 1,931,403,524 piasters in 1879–'80; the exports, 930,000,000 piasters, against 836,209,246. The imports of cereals in 1879–'80 were 291,096,000 piasters in value, exports 83,294,000; imports of alcoholic beverages 38,436,000, exports 5,773,000 piasters; imports of groceries 150,945,000, exports 54,162,000 piasters; imports of seeds and fruits 12,889,000, exports 242,625,000 piasters; imports of animals and animal food-products 77,083,000, exports 15,082,000 piasters; imports of fuel 21,309,000, exports 771,000 piasters; imports of minerals 4,453,000, exports 2,135,000 piasters; imports of metals, raw and partly manufactured, 66,564,000, exports 1,242,000 piasters; imports of skins, hair, and leather 53,795,000, exports 43,813,000 piasters; imports of textile materials 3,710,000, exports 133,761,000 piasters; imports of timber 11,345,000, exports 6,228,000 piasters; imports of yarns and textile manufactures 907,060,000, exports 61,575,000 piasters; imports of other manufactured articles 146,090,000, exports 21,561,000 piasters; imports of drugs, oils, etc., 127,011,000; exports 186,347,000 piasters; imports of miscellaneous merchandise 19,618,000, exports 4,840,000 piasters; total imports, 1,931,404,000, total exports 863,209,000 piasters.

Navigation.—The tonnage entered at Constantinople in 1882 was 6,535,797, of which 3,170,870 tons were English. The steam tonnage was 3,165,366. The sailing tonnage entered at Smyrna was 1,066,337, the steam tonnage 991,714; the sailing tonnage at Salonica 927,139, the steam tonnage 720,084. The merchant navy in 1879 comprised 220 ocean-going sail-ships of 34,500 tons, and 11 steamers of 8,350.

Railroads.—The lines completed in 1884 had a total length of 1,432 kilometres, besides 274 kilometres in Asia Minor.

The neglect of the Turkish Government to carry out the railroad convention agreed upon at the *conférence à quatre* was the occasion of remonstrances on the part of Austria. The Porte declared that the complications with the Hirsch syndicate were all that stood in the way of the junction of the Turkish and Servian lines. Baron Hirsch offered to build the lines, but refused the condition insisted upon by the Porte, that the company, which is now Austrian, should become Ottoman, at least until its old accounts with the Turkish Government were settled. This proviso was unacceptable to the court, because the complications with the company are interminable, and would place the railroad beyond Turkish jurisdiction for an indefinite period. The agreement made with the Eastern Railways Company, subject to the acceptance of Ottoman nationality, was to repay the company gradually from the revenue of the railroad, fixed at 45 per cent. of the receipts after deducting 7,000 francs per kilometre for working expenses, at a rate not to exceed 1,500 francs per kilometre. The Porte threatened to sequestrate the railroads and complete the junction by a *régie*, or give the commission to a new company. The neglect of Bulgaria and Roumania to fulfill their obligations with reference to their share of the Turkish debt was assigned as another reason for not carrying out the railroad convention before October, 1886, according to agreement.

A new Asiatic railway, connecting the rich districts of Adana and Tarsus with the port of Mersina, was begun in May, 1884.

Telegraphs.—There were 27,497 kilometres of telegraph lines, with 52,142 kilometres of wire, in 1878. In Bosnia and Herzegovina there were in 1880 1,982 kilometres of lines.

The Army.—According to the new plan of military organization, approved by the Padishah in May, 1880, the army is divided into the *nizam* or active army, the *redif* or reserve, and the *mustahfiz* or levy in mass. The duration of service is twenty years, of which six are passed in the active army and its reserve. The war effective of the active army is to be 610,200 men, with 1,512 guns. The actual strength of the *nizams* in 1883 was 10,311 officers and 150,106 men, with 650 guns.

The Navy.—The fleet has been greatly weakened by losses of vessels and sales made to England. In recent lists, 9 indifferent vessels on the Danube and 9 in the Black Sea, including 1 steam-frigate, are all that are mentioned.

Finances.—The budget estimates for the fiscal year ending Feb. 28, 1881, make the receipts 1,615,584,000 piasters, and the expenditures 1,914,876,359 piasters.

The foreign debt was scaled down by the arrangement with the creditors, sanctioned by the Sultan, Dec. 16, 1881, from £252,801,885, including accrued interest amounting to £61,803,905, to £106,437,234, for the service of which the salt and tobacco monopolies and certain imposts and tithes are reserved. The Galata bankers, whose claims for money advanced amounted to 8,170,000 Turkish pounds, receive from the debt commission 590,000 Turkish pounds a year, sufficient to pay 5 per cent. interest and provide a sinking fund, in return for releasing the "six indirect contributions" for the service of the general debt. Other loans are partly secured by a reserved share of the Turkish tribute, over and above which they demand £197,602 a year. The floating and internal debts amount to about 20,000,000 Turkish pounds. The Russian war indemnity of 32,000,000 pounds is payable in 100 annual installments, without interest.

The Capitulations.—The Sultan took a determined stand in 1884 against the most humiliating features of the international control over certain functions of government. He proclaimed the intention of suppressing the foreign post-offices and establishing a Turkish postal service. The first essay in the foreign mail service, however, was a failure, the expensive steamers that were procured to convey the mails to the railroad terminus in the Danube not being able to make the connection with Varna.

The Porte also insisted that its appointment of seven new members on the Sanitary Board should be admitted by the powers. This would give Turkey the majority in the board. The ground for the change was the danger from cholera. It was supposed that Europeans, in the commercial interest of their compatriots, would disregard the sanitary interests of the Turkish population. The Turkish physicians were admitted to the meetings of the board as consultative members, but, when they insisted on full membership, all the foreign members except the British left the hall. They then proceeded to assume the functions of the board, and decreed an extension of quarantine. The post-office and sanitary regulations were not a part of the capitulations, yet the ultimate design of the Sultan was to do away with consular jurisdiction and the other provisions of the capitulations.

Religious Difficulties.—The election of the Armenian Catholicos at Etchmiadzin took place May 21. Since the majority of the dioceses are in Turkey, the Turkish Armenians have hitherto controlled the choice of their ecclesastical head; but the Russian Government determined to transfer the preponderance to Russia, which now contains not only the spiritual capital, but the main body of the nation. It insisted also in applying the laws known as the Balagenia, according to which the Czar would select the Catholicos from among the candidates receiving the largest number of votes. This Russian law has always been objected to by the Armenians as contrary to their canons and an invasion of their ancient liberties. The Armenian Patriarch of Constantinople, Nerses, decided to hold a preliminary election in Constantinople, and send delegates to Etchmiadzin to deliver the collective votes of the Turkish bishoprics. When the election took place in Etchmiadzin, Monseigneur Nerses received the most votes, the next highest number going to Melchizedeck, Bishop of Smyrna. The Czar's representatives objected to receiving the vote of the Turkish delegation, except as a single vote for the See of Constantinople. Nerses had repeatedly refused to be a candidate for Catholicos, and now declined the office. The name of Melchizedeck was thereupon submitted to the Czar for confirmation. The Czar's Government, on account of this and other deviations from the Balagenia, declared the election void, appointing a new one in a year.

The efforts of Abdul-Hamid to strengthen and nationalize Turkish institutions, and emancipate the country from foreign control, brought him into fresh conflicts with the Christian churches. The Armenian Patriarch resigned in earnest when, in addition to the neglect of long-promised reforms and the denial of protection to the oppressed Armenians of the Lebanon, the Porte now infringed upon the ancient privileges and autonomous rights of the church. The Greek Patriarch had already resigned, for the same reason. The Greek Catholics refused to yield up rights enjoyed *ab antiquo*, by giving Turkish judicial authorities criminal jurisdiction over parish priests. The dispute was finally compromised on the basis of the *status quo ante.* The Fanar was at the same time disturbed by an intestine division, which was finally composed by the election of the Archbishop of Derkos to the patriarchate.

Photiades Pasha, the Christian governor appointed over Crete, resigned, but the difficulties with the Cretans were amicably settled by an agreement to reserve 1,500 Turkish pounds of the Vakuf revenues for the mosques, and to pay the rest into the local treasury.

Macedonian Outrages.—Many reports were sent abroad during the latter part of 1884 describing outrages committed on Christians by Mussulman fanatics. The Turkish Government made an investigation, and reported that the disturbances were not of a religious nature, but were acts of brigandage and robbery committed by both Christians and Mohammedans. The governors reported that there was a political agitation in progress against Turkish rule conducted from Bulgaria and Eastern Roumelia.

Rebellion in Yemen.—An insurrection in Arabia necessitated the dispatch of considerable bodies of troops, which succeeded in partially suppressing the rebellion, though the country was still so disordered at the end of the year that no taxes could be collected.

The Governorship of Eastern Roumelia.—The term of Aleko Pasha expired in 1884. The appointment of Aleko Pasha for a new term of five years would have been satisfactory to most of the powers; but Russia objected to him or to Rustem Pasha, or to any Turkish or foreign candidate, except one predisposed to Russian and Slavic interests. Accordingly, M. Crestovich, a Bulgarian, was appointed.

Commercial Treaties.—The United States and Turkey could not come to an agreement in the matter of a provisional commercial convention. As the Turkish Government refused to accept Gen. Wallace's view, and insisted that the treaty had expired, the United States concluded to fall back on the treaty of 1830, which secures the most-favored-nation treatment. Austria declined to modify her treaty before its expiration, as had been done by Germany, but agreed to an increase of specific duties under the new tariff. The English Government in the negotiations for a commercial treaty took the ground that the capitulations in respect to foreign trade, superseded by the treaty of 1861, would revive when the treaty expired.

The Montenegrin Frontier.—When Prince Nicholas of Montenegro visited Constantinople and, under the auspices of Russia, whose relations with Austria were strained at that time, formed an alliance with the Sultan, the object of which was to prevent the advance of Austria to Salonica, the Sultan agreed to a considerable extension of Montenegrin territory in northern Albania, which would finally set at rest the Montenegrin boundary question. Orders were given for handing over the territory, but the Albanians determined to prevent it. On June 5 the inhabitants of the Gusinje district attacked a Montenegrin village and carried off the heads of thirteen Montenegrins. Armed bands were raised in all the villages of the north. Large re-enforcements of Turkish troops were sent to Macedonia and Albania. The turbulent chief Ali Pasha, of Gusinje, was arrested. Collisions took place with the Turkish troops, but the affair subsided, and the ultimate delineation of the frontier was postponed. Albania was in a state of ferment and anarchy during the entire year. In October bands of marauders fell upon Christian villages in the part of Albania known as Old Servia, and burned the houses and committed murders.

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UNITARIANS. The "Unitarian Church Directory and Missionary Hand-Book" for 1884–'85 gives a list of 344 Unitarian churches in the United States and Canada, which are distributed as follows: In Canada, 3; California, 6; Colorado, 3; Connecticut, 2; Dakota, 1; Delaware, 1; District of Columbia, 1; Georgia, 1; Illinois, 16; Indiana, 4; Iowa, 8; Kansas, 3; Maine, 19; Maryland, 1; Massachusetts, 178; Michigan, 14; Minnesota, 8; Missouri, 5; Nebraska, 4; New Hampshire, 23; New Jersey, 1; New York, 17; Ohio, 8; Oregon, 4; Pennsylvania, 6; Rhode Island, 4; South Carolina, 1; Vermont, 5; Wisconsin, 7. The "Directory" gives the names of 267 ministers who are in charge of churches, and of 112 ministers who are not in charge of churches.

The organizations for religious and benevolent work consist of the American Unitarian Association; the National Conference of Unitarian and other Christian Churches; the Western and the Southern Unitarian Conferences; the Women's Auxiliary Conference; the Women's Western Unitarian Conference; the Unitarian and the Western Unitarian Sunday-School Societies; twenty-five State and local conferences and associations; twelve ministerial associations, unions, and educational societies; three general organizations in behalf of Sunday-schools; and numerous local organizations. The theological schools are the Divinity School of Harvard University, Cambridge, Mass., with a faculty of eight members, and the Meadville Theological School, Meadville, Pa., with ten instructors.

Unitarians in Great Britain.—The Unitarians have in England 283 places of worship; in Scotland, 9; in Wales, 32; in Ireland, 41; and in the Isle of Man, 1. The number of ministers on active duty in Great Britain and Ireland is 281; while 91 other ministers are engaged in literary or other pursuits, or have retired from work. The principal Unitarian educational institution in England is Manchester New College in London, of which the Rev. James Martineau, LL. D., is principal. The denomination has also a college for the education of "missionaries" in Manchester.

Unitarians in Hungary. — The Unitarian organization in Hungary (Transylvania) is episcopal in form, with one bishop whose cathedral is at Klausenburg (Koloszvar), and includes 108 parishes, with about 60,000 members. The college at Klausenburg has twelve professors and about 300 students; gymnasia are sustained at Thorda and St. Keresztur; and the parish day-schools return more than 5,000 students. The Hungarian Church is on fraternal relations with the American Unitarian Association, and a regular correspondence is kept up between the two bodies.

National Conference of Unitarian Churches.—The eleventh meeting of the National Conference of Unitarian and other Christian churches was held at Saratoga, N. Y., beginning September 22. The Hon. Dorman B. Eaton presided. Two hundred and twelve churches and 33 conferences, associations, etc., were represented by 526 delegates. The Council of the Conference reported that in the two years since the last meeting of the body, the churches united in it had contributed $428,000 to the various objects then proposed by it. In the twenty years since the Conference was formed, the Unitarian Church had endowed Antioch College with $110,000, Meadville Theological School with $75,000, and the Cambridge Divinity School with $130,000; while the American Unitarian Association, besides its regular and enlarging work of missions, had collected the means and made the plans of a central home of its missionary efforts.

The report of the American Unitarian Association stated that in the past two years $199,000 had been given through it to special objects, viz.: $152,000 to erect a denominational building, and $47,000 more to relieve the church in New Orleans from debt; to complete the additional endowment for the seminary at Meadville, Pa.; to establish a professorship in the Unitarian College in Hungary; and to support the Rev. A. D. Mayo in his work for Southern education. Besides these sums, $145,000 had been bequeathed to increase the permanent missionary fund, and the regular contributions had continued to increase, amounting now to $79,000. The Association had kept alive twenty feeble parishes, helped twenty-four other churches in growing towns, supported religious services in eight educational centers, helped sustain nine State missionaries, maintained the mission in India, and participated in the support of a church in Buda-Pesth, Hungary, and had sent out several thousand volumes and more than 200,000 tracts. Reports were received from the Western Conference, which, besides co-operating with the Western State Conferences in the work of missions and church extension, has established a large book-store and Unitarian headquarters in Chicago; and from the Southern Conference, the headquarters of which are at Atlanta, Ga.

The Conference adopted resolutions recommending the maintenance of State Conferences where that is practicable without interfering with existing local conferences, and the appointment of a State missionary for each; recommending the setting apart of $25,000 as the nucleus of the church-building loan fund to be established by the American Unitarian Association, and the addition of $20,000 more to be raised by immediate subscriptions; and approving the formation of Unitarian clubs, for the purpose of uniting the lay members of the different churches in social co-operation in a common interest. The following resolutions were adopted on the subject of the use of intoxicating liquors:

"Resolved, that, under all the conditions of modern society, we believe that nothing short of a total disuse of intoxicating beverages can serve as a sure means of abolishing and preventing the miseries and evils of intemperance; that since it is agreed on all sides that such beverages form no part of a necessary diet for men and women in health, we affectionately call on all who may regard their moderate use as innocent to give up such use, out of compassion for their weaker brethren.

"That the magnitude of the aforesaid evils, and the fact that they affect injuriously all social and public as well as private interests, make it imperative that society should step to the verge of its effective power in the employment of well-considered legislation for the suppression of the traffic in such beverages.

"That in the interests of humanity and for the honor of religion, we hold it incumbent upon our ministers and churches to bear a positive and unequivocal testimony against the use and sale of intoxicating drinks.

"That since the complete triumph of temperance principles must rest on sound reason and improved education, we heartily rejoice in the passage by the Legislatures of New York, Michigan, and other States, of laws requiring that the physiological effects of alcohol shall be made a part of common-school instruction."

It was decided that a special meeting of the Conference be held, in conjunction with the American Unitarian Association, during the year 1885, on the occasion of the completion of the new Unitarian Building erected by the Association in Boston.

The Hon. Samuel F. Miller, of Washington, D. C., was elected President of the Conference for the ensuing year.

UNITED STATES. Official Changes.—Few important official changes took place in the United States Government during the year. On the death of Secretary Charles J. Folger, of the Treasury Department, Postmaster-General Gresham was appointed to the place, September 25, the Assistant Postmaster-General, Frank Hatton, being afterward, October 14, advanced to the head of the Post-Office Department. Mr. Gresham retained the Treasury portfolio only until October 28, when he was appointed Circuit Judge for the Seventh Circuit, to succeed Judge Drummond, who had resigned. Hugh McCulloch was then appointed Secretary of the Treasury. George W. McCrary, Judge of the Eighth Judicial Circuit, resigned early in the year, and was succeeded by David J. Brewer, of Kansas. John J. Knox, Comptroller of the Currency, resigned, and was succeeded by H. W. Cannon, of Minnesota, on the 30th of April. The relations of the American minister at Berlin, Mr. A. A. Sargent, became somewhat strained in consequence of the publication of a dispatch from him declaring that the German restriction upon the importation of American pork products was not due to their diseased condition, but was in the interest of protection to German hogs. This was followed by the return, through Prince Bismarck, of the resolutions passed by the House of Representatives in regard to the death of Dr. Edward Lasker, in which it was declared that "his fair and constant exposition of free and liberal ideas have materially advanced the social, political, and economic condition of those people." Bismarck, in a dispatch to the German minister at Washington, in explanation of his course, said:

> From my knowledge of the course the political and economic development of the German people has taken, I can not regard this opinion as one in accordance with the facts I have witnessed. I would not venture to oppose my judgment to that of an illustrious assembly like the House of Representatives of the United States if I had not gained, during an active participation in German internal politics of more than thirty years, an experience which encourages me to attach also to my opinion a certain competency within these limits. I can not make up my mind to ask his Majesty the Emperor for the necessary authorization to communicate the resolution of the House of Representatives of the United States to the German Reichstag, because I should therewith have to officially indorse myself, and also to indorse with his Majesty the Emperor, an opinion which I am unable to recognize as just.

In a reply transmitted to Minister Sargent, under date of February 9, Secretary Frelinghuysen explained the circumstances of the adoption of the resolution, and said:

> My duty of courtesy to the House of Representatives ended with forwarding the resolution through the proper channel to the hands of the officer charged with the administration of the foreign affairs of Germany. This Government is not disposed to inquire into the relations existing between different branches of another. The sentiments of the resolution are now generally known, their merits or demerits can be judged, and its non-transmission officially, as it was intended and claimed on its face to be of friendly intent, while a matter of regret, is not one of concern to either branch of the Government of the United States.

Shortly after this Mr. Sargent resigned, and was appointed, March 26, to the vacant mission at St. Petersburg, which he declined. Alphonso Taft, minister at Vienna, was subsequently transferred to St. Petersburg, and succeeded at Vienna by John M. Francis, of New York. Later in the year, Mr. John A. Kasson, of Iowa, was appointed to the Berlin mission.

New Bureaus and Commissions.—By an act of Congress approved July 5, a Bureau of Navigation in the Treasury Department was created to have charge of interests connected with American shipping. Mr. Jarvis Patten, of Maine, was appointed Commissioner of Navigation under this act, with a salary of $4,000 a year. A Bureau of Labor Statistics was established by Congress, to be attached to the Department of the Interior. There was a long delay in the appointment of a commissioner to take charge of this, but near the beginning of 1885 Mr.

Carroll D. Wright, of Massachusetts, was selected.

Under authority of an act of Congress, approved July 7, a commission was appointed by the President "to ascertain the best modes of securing more intimate international and commercial relations between the United States and the several countries of Central and South America." The commissioners consisted of George H. Sharpe, of New York; Thomas C. Reynolds, of Missouri; and Solon O. Thacher, of Kansas; and W. E. Curtis, of Washington, was appointed secretary to the commission. Conferences were given on the subject of the inquiry in several cities of the country, and in December the commission made a visit to Mexico. Returning thence by way of New Orleans, it embarked for Venezuela early in 1885.

Treaties.—The commercial treaty with Mexico, which was negotiated in 1882–'83, was ratified by the Senate, March 11, by a vote of 41 to 20, but the legislation necessary to give it effect has not been adopted. A treaty was negotiated during the year with the Spanish Government at Madrid, by the American minister, John W. Foster, the purpose of which was to secure a freer interchange of products between the United States and the islands of Cuba and Porto Rico. This was submitted to the Senate on the 10th of December, but was not ratified during the session of Congress which had then begun. The object of the treaty, as stated by the Secretary of State, was:

> 1. To establish such reciprocity of exchange of the products of the United States and of the neighboring Spanish provinces and islands of Cuba and Porto Rico, and such mutual shipping privileges as will tend to a greater development of commerce. 2. To remove the restrictions and obstructions to which American trade and shipping have for many years been exposed under the tariff and customs regulations of these islands; and, 3. To supplement the treaty of 1795 with Spain by the more modern provisions as to commercial freedom, the protection of the rights of persons and property, and "the most-favored-nation" clause, which do not exist in that treaty.

A liberal reduction in the duties on sugar and tobacco imported from Cuba and Porto Rico caused a strong opposition to the treaty, and was instrumental in preventing its immediate ratification. It was still pending at the final adjournment of Congress, but was subsequently recalled from the Senate by the new President during the special session of that body, which began on the 5th of March, 1885. A treaty of reciprocity with Santo Domingo was signed at Washington on the 4th of December by Secretary of State Frelinghuysen and Señor Manuel D. J. Galvin as plenipotentiaries for the two powers. It provided for the free interchange of certain products, and a liberal reduction of duties on others, and made provision for a much less restricted commercial intercourse. No action was taken upon this by the Senate during the session ending March 4, 1885, and it was afterward withdrawn by President Cleveland. A treaty with Nicaragua was signed at Washington on the 1st of December by Secretary Frelinghuysen on the part of the United States, and Gen. Joaquin Zavala for the Central American republic. The purpose of this was to secure the construction of the proposed interoceanic canal in Nicaragua by the Government of the United States. This met with opposition, and failed of ratification during the last session of the Forty-eighth Congress. This also was withdrawn by the President during the special session of the Senate.

The Political Canvass.—The political canvass for the election of President and Vice-President was one of exceptional interest and importance. As early as December, 1883, certain Republicans in the city of Boston began a movement in behalf of the "adoption of measures and the nomination of men fitted to command the hearty approval and support of the independent, thoughtful, and discriminating voters of the United States." A committee was formed and a correspondence entered into which resulted in a call for a conference of Independent Republicans in New York on February 23. At this conference the following resolution, offered by the Hon. Frederick A. Potts, of New Jersey, was adopted:

> *Whereas*, A consistent and faithful adherence to the principles of administrative reform, heretofore indorsed in State and National Convention, is absolutely essential to the vitality and success of the Republican party; and events have shown that the disregard of these principles has led to party defeat in several of the most important States; and,
>
> *Whereas*, The adoption of a similarly mistaken policy would inevitably lead to defeat at the next Presidential election:
>
> *Resolved*, That it is indispensable to the success of the Republican party that the character, record, and associations of its candidates for President and Vice-President of the United States should be such as to warrant entire confidence in their readiness to defend the advance already made toward divorcing the public service from party politics, and to continue these advances till the separation has been made final and complete.

A committee was appointed "to provide for the interchange and practical expression of opinion in harmony with the foregoing resolution, and to take such action in relation thereto as they may deem expedient." At first only men from New York were selected, authority being given to them to add representatives from other States. Gen. Francis C. Barlow, of New York, was made chairman of the committee. Circulars were sent out, setting forth the object of the Independent movement and inviting co-operation, and on the 12th of May the committee sent a circular letter to the delegates to the Republican National Convention.

Republican Convention.—The time and place for the Republican Convention had been determined upon by the National Committee at a meeting held in Washington in December, 1883, together with the plan of representation for States and congressional districts. (See "Annual Cyclopædia" for 1883.) As the preliminary canvass opened in the several States, it was evident that the popular preference in regard to candidates for President was divided chiefly between President Chester A. Arthur, of New York, and the Hon. James G. Blaine, of Maine, with Senator George F. Edmunds, of Vermont, in favor with the more independent elements of the party, including those engaged in the organized Independent movement. The Blaine sentiment was strongest in the West and in the States of Pennsylvania and Maine; that favorable to Arthur appeared to prevail largely in the South; Edmunds was strongly supported in Massachusetts and Vermont; while Senators John Sherman, of Ohio, John A. Logan, of Illinois, and Joseph R. Hawley, of Connecticut, had the support of the party in their respective States. In New York there was a nearly equal division in the State Convention between delegates favorable to Arthur and those favorable to Blaine, with those who preferred Edmunds holding the balance of power. (See NEW YORK, in this volume.) A mass-meeting in favor of Mr. Arthur's nomination was held in the city of New York on the 20th of May, at which there was a large representation of the business community. Delegates to the National Convention, which was to open in Chicago on the 3d of June, began to gather several days in advance of that date. It was evident from the first that Mr. Blaine had the largest and most enthusiastic support, though less than a majority of the convention, and every effort to make an effective combination against him failed. The selection of Powell Clayton, of Arkansas, for temporary chairman by the National Committee in the supposed interest of Mr. Blaine, caused so much dissatisfaction that John R. Lynch, of Mississippi, was presented as an opposing candidate, and elected by a vote of 427 to 385. Gen. John B. Henderson, of Missouri, who was claimed as an Edmunds man, was chosen on the second day as permanent chairman. On the third day all the routine committee-work was completed, the report on contested seats, which was not important, was unanimously agreed to, the rules were adopted, the platform was reported and accepted without opposition, the new National Committee was selected, and speeches were made presenting candidates for President. An attempt to amend the rules of the organization so as to base representation in future conventions in part on the number of votes cast by the party in the several States, obtained so little favor that it was abandoned without a vote. The platform reported by Mr. William McKinley, Jr., of Ohio, chairman of the Committee on Resolutions, was as follows:

> The Republicans of the United States, in National Convention assembled, renew their allegiance to the principles upon which they have triumphed in six successive presidential elections, and congratulate the American people on the attainment of so many results in legislation and administration by which the Republican party has, after saving the Union, done so much to render its institutions just, equal, and beneficent—the safeguard of liberty and the embodiment of the best thought and highest purposes of our citizens.
>
> The Republican party has gained its strength by quick and faithful response to the demands of the people for the freedom and the equality of all men, for a united nation assuring the rights of all citizens, for the elevation of labor, for an honest currency, for purity in legislation, and for integrity and accountability in all departments of the Government; and it accepts anew the duty of leading in the work of progress and reform.
>
> We lament the death of President Garfield, whose sound statesmanship, long conspicuous in Congress, gave promise of a strong and successful administration, a promise fully realized during the short period of his office as President of the United States. His distinguished success in war and in peace has endeared him to the hearts of the American people.
>
> In the Administration of President Arthur we recognize a wise, conservative, and patriotic policy, under which the country has been blessed with remarkable prosperity, and we believe his eminent services are entitled to and will receive the hearty approval of every citizen.
>
> It is the first duty of a good government to protect the rights and promote the interests of its own people. The largest diversity of industry is most productive of general prosperity and of the comfort and independence of the people. We therefore demand that the imposition of duties on foreign imports shall be made, not for revenue only, but that, in raising the requisite revenues for the Government, such duties shall be so levied as to afford security to our diversified industries and protection to the rights and wages of the laborer, to the end that active and intelligent labor, as well as capital, may have its just reward and the laboring man his full share in the national prosperity. Against the so-called economic system of the Democratic party, which would degrade our labor to the foreign standard, we enter our earnest protest. The Democratic party has failed completely to relieve the people of the burden of unnecessary taxation by a wise reduction of the surplus. The Republican party pledges itself to correct the inequalities of the tariff and to reduce the surplus, not by the vicious and indiscriminate process of horizontal reduction, but by such methods as will relieve the tax-payer without injuring the labor or the great productive interests of the country. We recognize the importance of sheep-husbandry in the United States, the serious depression which it is now experiencing, and the danger threatening its future prosperity; and we therefore respect the demands of the representatives of this important agricultural interest for a readjustment of duty upon foreign wool, in order that such industry shall have full and adequate protection.
>
> We have always recommended the best money known to the civilized world, and we urge that an effort be made to unite all commercial nations in the establishment of an international standard which shall fix for all the relative value of gold and silver coinage.
>
> The regulation of commerce with foreign nations and between the States is one of the most important prerogatives of the General Government, and the Republican party distinctly announces its purpose to support such legislation as will fully and efficiently carry out the constitutional power of Congress over interstate commerce. The principle of the public regulation of railway corporations is a wise and salutary one for the protection of all classes of the people, and we favor legislation that shall prevent unjust discrimination and excessive charges for transportation, and that shall secure to the people and to the railways alike the fair and equal protection of the laws.
>
> We favor the establishment of a national bureau of labor, the enforcement of the eight-hour law, a wise and judicious system of general education by adequate appropriation from the national revenues wherever the same is needed.

We believe that everywhere the protection to a citizen of American birth must be secured to citizens by American adoption, and we favor the settlement of national differences by international arbitration.

The Republican party having its birth in a hatred of slave-labor, and in a desire that all men may be free and equal, is unalterably opposed to placing our working-men in competition with any form of servile labor, whether at home or abroad. In this spirit we denounce the importation of contract labor, whether from Europe or Asia, as an offense against the spirit of American institutions, and we pledge ourselves to sustain the present law restricting Chinese immigration, and to provide such further legislation as is necessary to carry out its purposes.

The reform of the civil service, auspiciously begun under Republican administration, should be completed by the further extension of the reformed system already established by law to all the grades of the service to which it is applicable. The spirit and purpose of the reform should be observed in all executive appointments, and all laws at variance with the objects of existing reformed legislation should be repealed, to the end that the dangers to free institutions which lurk in the power of official patronage may be wisely and effectively avoided.

The public lands are the heritage of the people of the United States, and should be reserved as far as possible for small holdings by actual settlers. We are opposed to the acquisition of large tracts of these lands by corporations or individuals, especially where such holdings are in the hands of non-resident aliens, and we will endeavor to obtain such legislation as will tend to correct this evil.

We demand of Congress the speedy forfeiture of all land-grants which have lapsed by reason of non-compliance with acts of incorporation in all cases where there has been no attempt in good faith to perform the conditions of such grants.

The grateful thanks of the American people are due to the Union soldiers and sailors of the late war, and the Republican party stands pledged to suitable pensions for all who were disabled, and for the widows and orphans of those who died in the war. The Republican party also pledges itself to the repeal of the limitation contained in the arrears act of 1879, so that all invalid soldiers shall share alike, and their pensions shall begin with the date of disability or discharge, and not with the date of the application.

The Republican party favors a policy which shall keep us from entangling alliances with foreign nations, and which shall give the right to expect that foreign nations shall refrain from meddling in American affairs; the policy which seeks peace and fair trade with all powers, but especially with those of the Western Hemisphere.

We demand the restoration of our navy to its old-time strength and efficiency, that it may in any sea protect the rights of American citizens and the interests of American commerce, and we call upon Congress to remove the burdens under which American shipping has been depressed, so that it may again be true that we have a commerce which leaves no sea unexplored and a navy which takes no law from superior force.

Resolved, That appointments by the President to offices in the Territories should be made from the *bona-fide* citizens and residents of the Territories which they are to serve.

Resolved, That it is the duty of Congress to enact such laws as shall promptly and effectually suppress the system of polygamy within our territory, and divorce the political from the ecclesiastical power in the so-called Mormon Church, and that the law so enacted should be rigidly enforced by the civil authorities if possible, and by the military if need be.

The people of the United States, in their organized capacity, constitute a nation, and not a mere confederacy of States. The national Government is supreme within the sphere of its national duty, but the States have reserved rights which should be faithfully maintained. Each should be guarded with jealous care, so that the harmony of our system of government may be preserved and the Union be kept inviolate. The perpetuity of our institutions rests upon the maintenance of a free ballot, an honest count, and correct returns. We denounce the fraud and violence practiced by the Democracy in Southern States, by which the will of the voter is defeated, as dangerous to the preservation of free institutions, and we solemnly arraign the Democratic party as being the guilty recipient of the fruits of such fraud and violence.

We extend to the Republicans of the South, regardless of their former party affiliations, our cordial sympathy, and pledge to them our most earnest efforts to promote the passage of such legislation as will secure to every citizen, of whatever race or color, the full and complete recognition, possession, and exercise of all civil and political rights.

In the presentation of candidates the name of Senator Joseph R. Hawley, of Connecticut, was offered by Mr. Brandagee, of that State, in a eulogistic speech; that of Senator John A. Logan, of Illinois, by Senator Cullom; Mr. Blaine's, by William H. West, of Ohio; President Arthur's, by Martin I. Townsend, of New York; Senator Sherman's, by Judge J. B. Foraker, of Ohio; Senator Edmunds's, by ex-Governor John D. Long, of Massachusetts. On Saturday, June 7, the fourth day of the convention, four ballots were taken, with the following result:

FIRST BALLOT.

James G. Blaine	334½
Chester A. Arthur	278
George F. Edmunds	93
John A. Logan	63½
John Sherman	30
Joseph R. Hawley	13
Robert T. Lincoln	4
W. T. Sherman	2

SECOND BALLOT.

James G. Blaine	349
Chester A. Arthur	276
George F. Edmunds	85
John A. Logan	61
John Sherman	28
Joseph R. Hawley	13
Robert T. Lincoln	4
W. T. Sherman	2

THIRD BALLOT.

James G. Blaine	375
Chester A. Arthur	274
George F. Edmunds	69
John A. Logan	53
John Sherman	25
Joseph R. Hawley	13
Robert T. Lincoln	8
W. T. Sherman	2

FOURTH BALLOT.

James G. Blaine	541
Chester A. Arthur	207
George F. Edmunds	41
John A. Logan	7
Joseph R. Hawley	15
Robert T. Lincoln	2

The changes on the fourth ballot were started by a dispatch from Senator Logan, recommending his friends to support Mr. Blaine. After the ballot, the usual motion to make the nomination unanimous was adopted, and at the evening session Senator Logan was nominated for Vice-President without opposition. B. F. Jones, of Pennsylvania, was subsequently made chairman of the new National Committee, and James B. Chaffee, of Colorado, chairman of the Executive Committee thereof. The headquarters were established in New York. The significant portions of Mr. Blaine's letter of acceptance are given on page 87.

The nominations caused much dissatisfaction and excited the opposition of the Independent Republicans, among whom were a number of persons who had been prominent in the party.

At a conference in New York on the 16th, called by the Independent Committee, and participated in by prominent representatives from several States, the following resolutions, offered by Mr. Carl Schurz, were adopted:

> *Whereas*, We are met in conference as Republicans and Independents to take action in opposition to the nominations of James G. Blaine for President and John A. Logan for Vice-President of the United States; and
>
> *Whereas*, These candidates were named in absolute disregard of the reform sentiment of the nation, and representing political methods and principles to which we are unalterably opposed:
>
> *Resolved*, That it is our conviction that the country will be better served by opposing these nominations than by supporting them.
>
> *Resolved*, That we look with solicitude to the coming nominations by the Democratic party; they have the proper men, we hope they will put them before the people for election.
>
> *Resolved*, That a committee of twenty-five members be appointed, whose duty it shall be, in co-operation with similar committees to be appointed elsewhere, to take without delay suitable measures for rallying and organizing the Republicans and Independents dissatisfied with the nominations of Blaine and Logan, with a view to the holding, at as early a day as possible, of a general representative conference for the purpose of concerting such further steps as may be found advisable for the expression and effective enforcement of our views of public interest.

The chairman of this meeting, and of the committee which subsequently acted under its authority, was George William Curtis, of New York. There was an anti-Blaine Republican meeting at New Haven, Conn., June 23, at which a committee was chosen to co-operate with others having a similar purpose.

Democratic Convention.—The Democratic National Committee, at a meeting held in Washington on the 22d of February, decided upon Chicago as the place, and July 8 as the time, of meeting of the National Convention. In the call, "all Democratic conservative citizens of the United States, irrespective of past political associations and differences, who can unite with us in the effort for pure, economical, and constitutional government," were "cordially invited" to join in sending delegates to the convention. In the preliminary canvass in the several States preferences were developed in various quarters in favor of Samuel J. Tilden, of New York, Thomas F. Bayard, of Delaware, Joseph E. McDonald and Thomas A. Hendricks, of Indiana, Samuel J. Randall, of Pennsylvania, Allen G. Thurman, of Ohio, John G. Carlisle, of Kentucky, and Gov. Grover Cleveland, of New York, as the candidate for the presidency, a number of State conventions giving formal expression to their preferences.

While the Democratic party in the State of New York was not altogether harmonious in support of Gov. Cleveland for the candidacy, a majority of the delegates chosen at the State Convention were favorable to it, and the delegation was instructed to vote as a unit. The opposition came chiefly from the Tammany faction of New York city, and was carried into the National Convention, notwithstanding the imposition of the unit rule by the State Convention. Mr. Cleveland's advocates were greatly strengthened by the assurance that, if nominated, he would receive the support of the Independent Republicans, who had declared against Blaine. In the convention the Tammany delegates made a vigorous contest against the "unit rule," but an amendment to the rules, providing that the votes of delegates, in case of difference, should be recorded in accordance with their individual preferences, was voted down, 332 to 463.

Gov. Richard B. Hubbard, of Texas, was the temporary, and William F. Vilas, of Wisconsin, permanent chairman of the convention. On the second day, after the permanent organization was effected, on a motion to lay on the table a proposition to proceed to the nomination of candidates, Mr. Manning, chairman of the New York delegation, announced its vote as "72 no," whereupon a Tammany delegate vigorously protested that it should be "49 no, 19 yes, and 4 absent," but it was recorded as announced by the chairman. The presentation of candidates was then begun and continued the next day. The name of Mr. Bayard was presented by Attorney-General Gray, of Delaware; that of Mr. McDonald by Mr. Hendricks, of Indiana; that of Mr. Thurman by John W. Breckenridge, of California; that of Mr. Carlisle by J. A. McKenzie, of Kentucky; that of Gov. Cleveland by Daniel S. Lockwood, of New York; the Tammany delegates opposing him through Mr. Thomas F. Grady, who declared that the Irishmen, the Roman Catholics, and the laboring-men of New York were against him; that of Gov. Hoadley, of Ohio, on the third day of the convention, by Thomas E. Powell; Mr. Randall's, by ex-Senator Wallace. A number of speeches were made seconding the nominations, and on the evening of the third day the platform was presented. This occasioned a new contest, led by Gen. B. F. Butler, of Massachusetts. The platform, as reported by William R. Morrison, of Illinois, chairman of the committee, was as follows:

> The Democratic party of the Union, through its representatives in National Convention assembled, recognizes that, as the nation grows older, new issues are born of time and progress and old issues perish. But the fundamental principles of the Democracy, approved by the united voice of the people, remain and will ever remain as the best and only security for the continuance of free government. The preservation of personal rights, the equality of all citizens before the law, the reserved rights of the States, and the suprem-

acy of the Federal Government within the limits of the Constitution, will ever form the true basis of our liberties, and can never be surrendered without destroying that balance of rights and powers which enables a continent to be developed in peace, and social order to be maintained by means of local self-government. But it is indispensable for the practical application and enforcement of these fundamental principles that the Government should not always be controlled by one political party. Frequent change of administration is as necessary as constant recurrence to the popular will. Otherwise, abuses grow, and the Government, instead of being carried on for the general welfare, becomes an instrumentality for imposing heavy burdens on the many who are governed, for the benefit of the few who govern. Public servants thus become arbitrary rulers. This is now the condition of the country; hence a change is demanded.

The Republican party, so far as principle is concerned, is a reminiscence. In practice it is an organization for enriching those who control its machinery. The frauds and jobbery which have been brought to light in every department of the Government are sufficient to have called for reform within the Republican party, yet those in authority, made reckless by the long possession of power, have succumbed to its corrupting influence, and have placed in nomination a ticket against which the independent portion of the party are in open revolt. Therefore, a change is demanded. Such a change was alike necessary in 1876, but the will of the people was then defeated by a fraud which can never be forgotten nor condoned. Again, in 1880, the change demanded by the people was defeated by the lavish use of money contributed by unscrupulous contractors and shameless jobbers, who had bargained for unlawful profits or high office. The Republican party, during its legal, its stolen, and its bought tenures of power, has steadily decayed in moral character and political capacity. Its platform promises are now a list of its past failures. It demands the restoration of our navy—it has squandered hundreds of millions to create a navy that does not exist. It calls upon Congress to remove the burdens under which American shipping has been depressed—it imposed and has continued those burdens. It professes the policy of reserving the public lands for small holdings by actual settlers—it has given away the people's heritage till now a few railroads and non-resident aliens, individual and corporate, possess a larger area than that of all our farms between the two seas. It professes a preference for free institutions—it organized and tried to legalize a control of State elections by Federal troops. It professes a desire to elevate labor—it has subjected American working-men to the competition of convict and imported contract labor. It professes gratitude to all who were disabled or died in the war, leaving widows and orphans—it left to a Democratic House of Representatives the first effort to equalize both bounties and pensions. It proffers a pledge to correct the irregularities of our tariff—it created and has continued them. Its own tariff commission confessed the need of more than 20 per cent. reduction—its Congress gave a reduction of less than 4 per cent. It professes the protection of American manufactures—it has subjected them to an increasing flood of manufactured goods and a hopeless competition with manufacturing nations, not one of which taxes raw materials. It professes to protect all American industries—it has impoverished many to subsidize a few. It professes the protection of American labor—it has depleted the returns of American agriculture, an industry followed by half our people. It professes the equality of all men before the law attempting to fix the status of colored citizens—the acts of its Congress were overset by the decisions of its courts. It "accepts anew the duty of leading in the work of progress and reform"—its caught criminals are permitted to escape through contrived delays or actual connivance in the prosecution. Honeycombed with corruption, outbreaking exposures no longer shock its moral sense. Its honest members, its independent journals, no longer maintain a successful contest for authority in its councils or a veto upon bad nominations. That change is necessary is proved by an existing surplus of more than $100,000,000, which has yearly been collected from a suffering people. Unnecessary taxation is unjust taxation. We denounce the Republican party for having failed to relieve the people from crushing war-taxes, which have paralyzed business, crippled industry, and deprived labor of employment and of just reward.

The Democracy pledges itself to purify the Administration from corruption, to restore economy, to revive respect for law, and to reduce taxation to the lowest limit consistent with due regard to the preservation of the faith of the nation to its creditors and pensioners. Knowing full well, however, that legislation affecting the operations of the people should be cautious and conservative in method, not in advance of public opinion, but responsive to its demands, the Democratic party is pledged to revise the tariff in a spirit of fairness to all interests. But, in making reduction in taxes, it is not proposed to injure any domestic industries, but rather to promote their healthy growth. From the foundation of this Government taxes collected at the custom-house have been the chief source of Federal revenue. Such they must continue to be. Moreover, many industries have come to rely upon legislation for successful continuance, so that any change of law must be at every step regardful of the labor and capital thus involved. The process of the reform must be subject in the execution to this plain dictate of justice. All taxation shall be limited to the requirements of economical government. The necessary reduction in taxation can and must be effected without depriving American labor of the ability to compete successfully with foreign labor, and without imposing lower rates of duty than will be ample to cover any increased cost of production which may exist in consequence of the higher rate of wages prevailing in this country. Sufficient revenue to pay all the expenses of the Federal Government economically administered, including pensions, interest and principal of the public debt, can be got under our present system of taxation from custom-house taxes on fewer imported articles, bearing heaviest on articles of luxury and bearing lightest on articles of necessity. We therefore denounce the abuses of the existing tariff, and, subject to the preceding limitations, we demand that Federal taxation shall be exclusively for public purposes, and shall not exceed the needs of the Government economically administered.

The system of direct taxation known as the "internal revenue" is a war-tax, and so long as the law continues the money derived therefrom should be sacredly devoted to the relief of the people from the remaining burdens of the war, and be made a fund to defray the expense of the care and comfort of worthy soldiers disabled in line of duty in the wars of the republic, and for the payment of such pensions as Congress may from time to time grant to such soldiers, a like fund for the sailors having been already provided, and any surplus should be paid into the Treasury.

We favor an American continental policy based upon more intimate commercial and political relations with the fifteen sister republics of North, Central, and South America, but entangling alliances with none.

We believe in honest money, the gold and silver coinage of the Constitution, and a circulating medium convertible into such money without loss.

Asserting the equality of all men before the law, we hold that it is the duty of the Government in its dealings with the people to mete out equal and exact justice to all citizens of whatever nativity, race, color, or persuasion, religious or political.

We believe in a free ballot and a fair count, and we recall to the memory of the people the noble struggle of the Democrats in the Forty-fifth and Forty-sixth

Congresses, by which a reluctant Republican opposition was compelled to assent to legislation making everywhere illegal the presence of troops at the polls, as the conclusive proof that a Democratic Administration will preserve liberty with order.

The selection of Federal officers for the Territories should be restricted to citizens previously resident therein.

We oppose sumptuary laws which vex the citizen and interfere with individual liberty.

We favor honest civil-service reform and the compensation of all United States officers by fixed salaries; the separation of church and state, and the diffusion of free education by common schools, so that every child in the land may be taught the rights and duties of citizenship.

While we favor all legislation which will tend to the equitable distribution of property, to the prevention of monopoly, and to the strict enforcement of individual rights against corporate abuses, we hold that the welfare of society depends upon a scrupulous regard for the rights of property as defined by law. We believe that labor is best rewarded where it is freest and most enlightened. It should therefore be fostered and cherished. We favor the repeal of all laws restricting the free action of labor, and the enactment of laws by which labor organizations may be incorporated, and of all such legislation as will tend to enlighten the people as to the true relations of capital and labor.

We believe that the public land ought, as far as possible, to be kept as homesteads for actual settlers; that all unearned lands heretofore improvidently granted to railroad corporations by the action of the Republican party should be restored to the public domain, and that no more grants of land shall be made to corporations, or be allowed to fall into the ownership of alien absentees.

We are opposed to all propositions which upon any pretext would convert the General Government into a machine for collecting taxes to be distributed among the States or the citizens thereof.

In reaffirming the declaration of the Democratic platform of 1856, that the liberal principles embodied by Jefferson in the Declaration of Independence, and sanctioned in the Constitution, which make ours the land of liberty and the asylum of the oppressed of every nation, have ever been cardinal principles in the Democratic faith, we nevertheless do not sanction the importation of foreign labor or the admission of servile races, unfitted by habits, training, religion, or kindred, for absorption into the great body of our people, or for the citizenship which our laws confer. American civilization demands that against the immigration or importation of Mongolians to these shores our gates be closed.

The Democratic party insists that it is the duty of this Government to protect with equal fidelity and vigilance the rights of its citizens, native and naturalized, at home and abroad, and, to the end that this protection may be assured, United States papers of naturalization issued by courts of competent jurisdiction must be respected by the executive and legislative departments of our own Government and by all foreign powers. It is an imperative duty of this Government to efficiently protect all the rights of persons and property of every American citizen in foreign lands, and demand and enforce full reparation for any invasion thereof. An American citizen is only responsible to his own Government for any act done in his own country or under her flag, and can only be tried therefor on her own soil and according to her laws; and no power exists in this Government to expatriate an American citizen to be tried in any foreign land for any such act.

This country has never had a well defined and executed foreign policy save under Democratic administration. The policy has ever been in regard to foreign nations, so long as they do no act detrimental to the interests of the country or hurtful to our citizens, to let them alone; that as a result of this policy we recall the acquisition of Louisiana, Florida, California, and of the adjacent Mexican territory by purchase alone, and contrast these grand acquisitions of Democratic statesmanship with the purchase of Alaska, the sole fruit of a Republican Administration of nearly a quarter of a century.

The Federal Government should care for and improve the Mississippi river and other great water-ways of the republic, so as to secure for the interior States easy and cheap transportation to tide-water.

Under a long period of Democratic rule and policy our merchant marine was fast overtaking and on the point of outstripping that of Great Britain; under twenty years of Republican rule and policy our commerce has been left to British bottoms and the American flag has almost been swept off the high seas. Instead of the Republican party's British policy, we demand for the people of the United States an American policy. Under Democratic rule and policy our merchants and sailors, flying the Stars and Stripes in every port, successfully searched out a market for the varied products of American industry; under a quarter century of Republican rule and policy, despite our manifest advantage over all other nations in high-paid labor, favorable climates, and teeming soils; despite freedom of trade among all these United States; despite their population by the foremost races of men and an annual immigration of the young, thrifty, and adventurous of all nations; despite our freedom here from the inherited burdens of life and industry in Old World monarchies, their costly war navies, their vast tax-consuming, non-producing standing armies; despite twenty years of peace, that Republican rule and policy have managed to surrender to Great Britain, along with our commerce, the control of the markets of the world. Instead of the Republican party's British policy, we demand, in behalf of the American Democracy, an American policy. Instead of the Republican party's discredited scheme and false pretense of friendship for American labor, expressed by imposing taxes, we demand, in behalf of the Democracy, freedom for American labor by reducing taxes, to the end that these United States may compete with unhindered powers for the primacy among nations in all the arts of peace and fruits of liberty.

With profound regret we have been apprised by the venerable statesman, through whose person was struck that blow at the vital principle of republics, acquiescence in the will of the majority, that he can not permit us again to place in his hands the leadership of the Democratic hosts, for the reason that the achievement of reform in the administration of the Federal Government is an undertaking now too heavy for his age and failing strength. Rejoicing that his life has been prolonged until the general judgment of our fellow-countrymen is united in the wish that that wrong were righted in his person, for the Democracy of the United States we offer to him, in his withdrawal from public cares, not only our respectful sympathy and esteem, but also that best homage of freemen, the pledge of our devotion to the principles and the cause now inseparable in the history of this republic from the labors and the name of Samuel J. Tilden.

With this statement of the hopes, principles, and purposes of the Democratic party, the great issue of reform and change in administration is submitted to the people in calm confidence that the popular voice will pronounce in favor of new men and new and more favorable conditions for the growth of industry, the extension of trade, the employment and due reward of labor and of capital, and the general welfare of the whole country.

Gen. Butler submitted a minority report, the essential feature of which was a formal and explicit declaration in favor of a protective tariff. On the question of substituting his brief declarations for those in the platform as reported, the vote was yeas 97½, nays 714½. The platform was then adopted without a count. The first ballot for candidate for President was taken the same night, and resulted as follows:

Grover Cleveland	392
Thomas F. Bayard	170
Joseph McDonald	56
Samuel J. Randall	78
Allen G. Thurman	88
John G. Carlisle	27
George Hoadly	3
Thomas A. Hendricks	1
Samuel J. Tilden	1
Roswell P. Flower	4

When the vote of New York was announced as 72 for Cleveland, it was stated that in the delegation it had stood 49 for Cleveland and 23 divided between Bayard, Slocum, and Flower. On the fourth and last day of the convention, the second ballot for candidate for President resulted as follows:

Grover Cleveland	683
Thomas F. Bayard	81½
Thomas A. Hendricks	45½
Allen G. Thurman	4
Samuel J. Randall	4
Joseph McDonald	2

The nomination of Cleveland was made unanimous on motion of Mr. Hendricks, who was subsequently nominated for Vice-President by acclamation after a roll-call had begun, all other names being withdrawn. A new National Committee was selected, of which William H. Barnum, of Connecticut, was afterward made chairman; Senator Gorman, of Maryland, being chairman of the Executive Committee. Headquarters were established in the city of New York.

Independent Conference.—Shortly after the Democratic Convention, another conference of the Independents was called, to be held in New York on the 22d of July. It was attended by a large number of delegates from different parts of the country, and presided over by Charles R. Codman, of Massachusetts. An address to the people was adopted, and committees appointed to carry on the work of the movement, the object of which was to defeat the Republican candidates. The address closed as follows:

> No citizen can rightfully avoid the issue or refuse to cast his vote. The ballot is a trust. Every voter is a trustee for good government, bound to answer to his private conscience for his public acts. This conference, therefore, assuming that Republicans and Independent voters who for any reason can not sustain the Republican nomination desire to take the course which, under the necessary conditions and constitutional methods of a presidential election, will most readily and surely secure the result at which they aim, respectfully recommends to all such citizens to support the electors who will vote for Grover Cleveland, in order most effectually to enforce their conviction that nothing could more deeply stain the American name and prove more disastrous to the public welfare than the deliberate indifference of the people of the United States to increasing public corruption, and to the want of official integrity in the highest trusts of the Government.

Throughout the canvass, by the dissemination of documents and by public meetings, the Independents, under the direction of their committee, labored for the election of the Democratic candidates. Their principal speaker was Mr. Carl Schurz, of New York, who traveled through several of the Northern States, making addresses on the issues and candidates before the people.

Anti-Monopoly, Greenback-Labor, and People's Parties.—A National Convention of the "Anti-Monopoly" party was held in Chicago on the 14th of May, and nominated Gen. Benjamin F. Butler, of Massachusetts, for President. The National Greenback-Labor party held a convention at Indianapolis on the 27th and 28th of May, which was presided over by Gen. J. B. Weaver, of Iowa. A dispatch was sent to Gen. Butler, asking him if he would accept a nomination on a satisfactory platform. He replied:

> BOSTON, *May* 28.
>
> *To* Gov. J. W. BEGOLE, *Indianapolis:*
>
> Thanks for your consideration, but why should I be asked a question which under the circumstances was never put to any other man? Is not my record as a Greenbacker for twenty years sufficient without a formal pledge to you which would cause me to be pointed at as a man who bids for the nomination?
>
> BENJAMIN F. BUTLER.

Gen. Butler was nominated by a vote of 323 to 98, the latter being cast for Jesse Harper, of Illinois. The platform set forth the principles and purposes of the party, demanded the substitution of greenbacks for national-bank notes, the destruction of "land, railroad, money, and other gigantic corporate monopolies," the restoration to the public domain of lands granted to railroads, prohibition of alien ownership of land, regulation of interstate commerce, a government postal telegraph, a graduated income-tax, abolition of convict-labor systems, reduction of the hours of labor, the fostering of education, the abolition of "child-labor," prohibition of "importations of contracted labor," and reduction of the terms of Senators. On the subject of the tariff it said:

> While we favor a wise revision of the tariff laws, with a view to raising a revenue from luxuries rather than necessaries, we insist that, as an economic question, its importance is insignificant as compared with financial issues, for, whereas we have suffered our worst panics under low and also under high tariffs, we have never suffered from a panic nor seen our factories and workshops stopped while the volume of money in circulation was adequate to the needs of commerce. Give our farmers and manufacturers money as cheap as you now give it to our bankers, and they can pay high wages to labor and compete with all the world.

The nomination of a candidate for Vice-President was left to the National Committee, and Gen. Absalom M. West, of Mississippi, was selected for that place on the 16th of August. In reply to the formal notice of his nomination, Gen. Butler replied in a letter dated June 12th, in which he discussed the currency question, but said nothing about accepting the candidacy. He was then taking part with the Democrats of Massachusetts in their preliminary canvass, and afterward went to the Chicago Convention as one of their delegates at large. There he opposed the platform adopted and the ticket placed in nomination, and on the 12th of August he published a long statement addressed to his "constituents," in which he discussed a great variety of topics, accepted the nominations of the Anti-Monopoly and Greenback-Labor Conventions, advocated the consolidation of elements of discontent and dissatisfaction in a "People's party," advised fusion with the minority in any State where there was a chance of gaining by it, and explained to the Democrats of Massachusetts his reasons for parting company with them.

Prohibition Convention.—A convention of the Prohibition party was held at Pittsburg on the 23d and 24th of July, a considerable number of the delegates being women. The platform denounced the encouragement of the importation, manufacture, supply, and sale of alcoholic beverages by national revenue laws, and demanded the abolition of the collection of revenues from alcoholic liquors and tobacco; set forth the evils arising from the liquor-traffic, and demanded that it be prohibited by the Government in all places over which it has exclusive jurisdiction, and that no State be hereafter admitted into the Union until its Constitution should prohibit polygamy and the manufacture and sale of intoxicating beverages, and appealed to all classes to aid in suppressing the liquor-traffic in the States. Faith in woman suffrage was declared, but the "practical outworking of this reform" was relegated "to the discretion of the Prohibition party in the several States, according to the condition of public sentiment in those States." Ex-Gov. John P. St. John, of Kansas, was nominated for the office of President, and William Daniel, of Maryland, for that of Vice-President.

(For Mr. Cleveland's letter of acceptance, see page 148.)

Incidents of the Canvass.—Mr. Hendricks signified his acceptance in a brief note, dated Indianapolis, August 20. St. John and Daniel were notified of their nominations, and accepted the same while at a temperance camp-meeting near Cuba, N. Y., on the 25th of August. S. C. Pomeroy, who had been nominated for President by the American or Anti Secret Society party, at a convention held in Chicago, June 20 and 21, withdrew in favor of St. John in the latter part of August. During the canvass an effort was made to induce Mr. St. John to withdraw in the interest of the Republican party, a formal request to that effect being addressed to him by a number of prominent men, with Dr. Theodore D. Woolsey, of New Haven, at their head, urging upon him reasons for such a course. He made an extended reply, in answer to these representations, and refusing to withdraw, under date of October 11. Gen. Butler was accused of having entered into an understanding with the Republican National Committee, in accordance with which his canvass was to serve the interests of the Republican ticket in return for the payment of the whole or a large part of his expenses. This he vehemently denied in a statement "to the people of the United States," dated October 25.

Both Butler and St. John conducted a personal canvass throughout the Northern States. Mr. Blaine passed the summer in Maine, partly at Augusta and partly at Bar Harbor, attending a few political meetings and receiving some visitors. On the 17th of September he left Augusta for an extended trip to the West, passing through Boston and New York, and delivering numerous brief addresses on his way through New York State and in Ohio, Indiana, Michigan, and West Virginia. On his return he gave a reception to a delegation of clergymen in New York on the 30th of October, the spokesman of the delegation causing some agitation by referring to the Democracy as the party of "rum, Romanism, and rebellion." The same evening he was entertained at a banquet by two hundred prominent capitalists of New York. Gov. Cleveland continued the performance of his official duties at Albany, making visits to Buffalo, October 2; to Newark, N. J., October 26; to Hartford and New Haven, October 30, and two visits to the city of New York during the same month, all of which visits were attended by political demonstrations.

Result of the Election.—The uncertainties of the canvass, occasioned by the defection of Republican Independents, the unusual vigor of the Prohibition movement, and the peculiar circumstances of Gen. Butler's candidacy, were increased by the evident lack of cordiality in the support given to Cleveland by the Tammany faction of New York, and the declared preferences for Blaine on the part of many Irish and Roman Catholic voters who had formerly adhered to the Democratic party. The apathetic canvass and light vote at the State election in Vermont were regarded as unfavorable to the Republicans, but were offset by the result in Maine shortly after. The ground was warmly contested in Ohio, in October, with the result of increasing rather than diminishing the uncertainty. The presidential election, on the 4th of November, accordingly enlisted more anxious interest on both sides than had been experienced for many years before. The closeness of the result in New York, whose electoral votes were a decisive factor, continued the excitement for some days after the election. (See NEW YORK, in this volume.) The electoral votes in favor of Cleveland and Hendricks were the following: Alabama 10, Arkansas 7, Connecticut 6, Delaware 3, Florida 4, Georgia 12, Indiana 15, Kentucky 13, Louisiana 8, Maryland 8, Mississippi 9, Missouri 16, New Jersey 9, New York 36, North Carolina 11, South Carolina 9, Tennessee 12, Texas 13, Virginia 12, West Virginia 6—total, 219. Those for Blaine and Logan were: California 8, Colorado 3, Illinois 22, Iowa 13, Kansas 9, Maine 6, Massachusetts 14, Michigan 13, Minnesota 7, Nebraska 5, Nevada 3, New Hampshire 4, Ohio 23, Oregon 3, Pennsylvania 30, Rhode Island 4, Vermont 4, and

Wisconsin 11—total, 182; majority for Cleveland, 87. The popular vote in the several States is shown in the following table, prepared from official returns:

STATES.	Blaine, Rep.	Cleveland, Dem.	Butler, People's.	St. John, Prohib.	Blaine pluralities.	Cleveland pluralities.	Total vote.
Alabama	59,144	92,973	762	610	....	33,829	153,459
Arkansas	50,895	72,927	1,847	....	....	22,032	125,580
California	102,416	89,288	2,017	2,920	13,128	....	196,738
Colorado	36,166	27,603	1,961	763	8,563	....	66,493
Connecticut	65,898	67,182	1,685	2,494	....	1.284	137,283
Delaware	13,053	16,976	10	64	....	3,923	30,103
Florida	28,031	31,769	....	72	....	3.738	59,872
Georgia	47,692	94,653	135	168	....	46,961	143,543
Illinois	337,411	312,584	10,849	12,005	24,827	....	672,849
Indiana	238,480	244.992	8,293	3,028	....	6,512	494,793
Iowa	197,089	177,316	....	1,472	19.773	....	375,969
Kansas	154,406	90,132	16,341	4,954	64,274	....	265,848
Kentucky	118,122	152,961	1,693	3,139	....	34,839	275,915
Louisiana	46,347	62,546	120	338	....	16,199	109,284
Maine	71,716	51,656	3,994	2,143	20,060	....	129.509
Maryland	85,748	96,866	578	2,827	....	11,118	186,019
Massachusetts	146,724	122,352	24,382	9,925	24,372	....	303,383
Michigan	192,669	189,361	753	18,403	3,308	....	401.186
Minnesota	111,685	70,065	3,583	4,684	41,620	....	190,017
Mississippi	43,509	76,510	....	....	....	33,001	120,019
Missouri	202,929	235,988	....	2,153	....	33,059	441.070
Nebraska	76,903	54,391	....	2,899	22,512	....	134,204
Nevada	7,193	5,578	26	....	1,615	....	12,797
New Hampshire	43,250	39,187	552	1,571	4,063	....	84.566
New Jersey	123,366	127.778	3,456	6,153	....	4,412	261,587
New York	562,001	563,048	17,002	25,001	....	1,047	1,171,312
North Carolina	125,068	142,952	....	454	....	17,884	268,474
Ohio	400,082	368,286	5,170	11,269	31,796	....	784,807
Oregon	26,860	24,604	726	492	2,256	....	52,683
Pennsylvania	473,804	392,785	17,002	15,737	81,019	....	899,328
Rhode Island	19,030	12,391	422	928	6,639	....	32,771
South Carolina	21,733	69,764	....	....	....	48,031	91,578
Tennessee	124,090	133,270	957	1,151	....	9.180	259,468
Texas	91,701	223,679	3,321	3,508	....	131,978	322,209
Vermont	39.514	17,331	785	1,752	22,183	....	59,382
Virginia	139,356	145,497	....	138	....	6,141	284,991
West Virginia	63,096	67,317	805	939	....	4,221	132,157
Wisconsin	161,157	146,459	4,598	7,656	14,698	....	319,942
Total	4,848,334	4,911,017	133,825	151,809	406,706	469,389	10,048,061
Plurality	......	62,683	....	....	....	....	......

It should be noted that the Blaine electoral tickets were supported by the Republicans and the People's party in Missouri and West Virginia, and that the Cleveland electoral tickets were supported by the Democrats and the People's party in Iowa, Michigan, and Nebraska. The People's party claimed to have cast about 41,300 votes for the Fusion ticket in Michigan, and about 33,000 votes in Iowa. There were 11,362 blank and scattering votes in all, which are included in the total above. In Georgia there were 895 votes cast for a bolter's or "Whig-Republican" electoral ticket, and not counted for Blaine. These, with the votes cast for Belva Lockwood, "Equal Rights" candidate, are included in "scattering."

In answer to a letter signed by the President and Executive Committee of the National Civil-Service Reform League, commending the cause of civil-service reform to his "patriotic care," Mr. Cleveland wrote a letter, which the reader may find on page 149 of this volume.

The Army.—No change was made during the year in the aggregate strength of the army; but the force of enlisted men is subject to rapid modifications from casualties. In three years the total casualties numbered 29,866, which exceeds the maximum strength of the army by nearly 5,000. Of these, 18,183 were discharges, 693 deaths, and 10,991 desertions—an average of 6,061 discharges, 231 deaths, and 3,664 desertions each year, the term of enlistment being five years. The number of enlistments during the year was 7,605, only about one sixth being re-enlistments. There was scarcely any field service for the army during the year, its duties consisting of occupation of posts on the frontiers of Canada and Mexico, and stations near the Indian agencies. The protection of Indian reservations and the guarding of the Indian Territory from intrusion was its most important service. The invasion of the Indian Territory by parties of settlers from the adjacent State of Kansas, in violation of law and in spite of Executive warnings, led to the establishment of the new Military District of Oklahoma, under command of Col. Edward Hatch, of the Ninth Cavalry, and the movement of a considerable force of troops to that quarter. This induced the withdrawal of the intruders without any use of force. There were 314 cadets at the West Point Academy on the 1st of September. The number of inmates of the Soldiers' Home was 719, of whom 193 were admitted during the year. There were 523 prisoners in the Military Prison at Fort Leavenworth, June 30. There were 2,280 trials by general court-martial during the year, leading to 700 convictions for desertion, and 10,983 trials by garrison and regimental courts-martial. The number of deaths in the army during the last fiscal year was 272, of which 193 were from disease and 79 from injuries.

Trial of Gen. Swaim.—Brig.-Gen. David G. Swaim, Judge-Advocate-General of the Army, was charged in April with having attempted to defraud a banking firm in Washington by transferring a certificate of deposit for the purpose of having the amount of the deposit collected by a third person through legal proceedings after he had in fact withdrawn nearly the whole amount. He was also accused of neglect of duty in failing to report the conduct of an officer who had duplicated his pay-account. On the 22d of April a court of inquiry was ordered to examine into these charges, and it reported on the 10th of June in favor of a trial of the accused by court-martial. A court was appointed for the purpose, and the trial began on the 10th of September, the formal charge being conduct unbecoming an officer and a gentleman, and neglect of duty, the facts being set forth in several specifications. Early in the year 1885 the trial resulted in a substantiation of the facts relating to the financial transaction, and a conviction for the lower grade of offense, "conduct to the prejudice of good order and military discipline." Gen. Swaim was sentenced to suspension from rank and duty for twelve years, with a forfeiture of half his pay.

Pensions.—There were on the rolls of the Pension-Office at the close of the fiscal year, June 30, 322,756 pensioners, of whom 218,956 were classified as army invalids, 75,836 as widows, minor children, and dependent relatives; 2,616 navy invalids, 1,938 navy widows, minor children, and dependent relatives; 3,898 survivors of the War of 1812, and 19,512 widows of those who served in that war. The number of names added during the year preceding was 35,413, and the number dropped 16,315. The average annual value of pensions was $106.75, and the aggregate annual value of all pensions, $34,456,600. The amount paid during the year was $56,908,597, of which $23,418,815 was paid to 31,207 new applicants, on arrears. The amount disbursed for pensions since 1861 is $678,346,854.34.

The Navy.—The additions made to the navy during the year consisted of the two unarmored steel cruisers constructed under the recommendations of the Naval Advisory Board, the Atlanta and the Boston, and the dispatch-steamer Dolphin. The cruisers are each 270 feet long, 42 feet beam, and 3,000 tons displacement, and have protective decks and water-tight compartments. The Dolphin is a vessel of 1,500 tons. All are constructed with a view to speed. A larger cruiser, the Chicago, of 4.500 tons, was under contract, but not completed at the close of the year. Machinery was in process of construction for the double-turreted monitors Puritan, Terror, and Amphitrite. The Advisory Board recommended the further construction of one cruiser of 4,500 tons, one cruiser of 3,000 tons, one dispatch-vessel of 1,500 tons, two heavily armed gunboats of 1,500 tons each, one light gunboat of 750 tons, one steel ram, one cruising torpedo-boat, two harbor torpedo-boats, and one armored vessel not exceeding 7,000 tons. The Secretary of the Navy, in approving this suggestion, recommended the construction of seven modern cruisers annually for ten years. Of the existing navy he said:

> It appears from the condition of the fleet that at the end of fifteen years the only cruising-vessels of the present list remaining will be three small iron vessels, the Monocacy, Alert, and Ranger. The limitation of repairs of wooden vessels should continue at 20 per cent. of their cost, as the department has for two years earnestly advocated. The real explanation of the disproportion between the expenditures and the results accomplished in naval administration is to be found in the policy of attempting at great cost to rehabilitate worn-out structures under the name of repairs. Repair and reconstruction in the absence of a fixed limit are terms easily interchangeable, and the published statements of expenditure under the first name during many years show that it is only too apt to mean the second. The bureaus are unrestricted in their expenditures for repairs, except by the gross amount of their annual appropriations. The practice of reconstructing vessels under the name of repair is the only pretext upon which our overgrown navy-yard establishments could be justified, and it appears that instead of maintaining our yards for the advantage and benefit of our ships, the ships have dragged out a protracted existence for the benefit of the yards.

Merchant Marine.—The tonnage of merchant-vessels owned in the United States at the close of the fiscal year 1884, according to the records of the Bureau of Navigation, was 4,271,228·76 tons. Of this amount 1,304,220·67 tons were in 2,127 vessels registered for the foreign trade, and 2,967,008·09 in 22,055 vessels enrolled and licensed for the coasting trade and fisheries. There was an increase of 2,126 tons in vessels in the foreign trade and 38,616 tons in domestic trade. The number of American vessels built and commenced during the last fiscal year was 1,190, having a gross tonnage of 225,514 and a net tonnage of 195,862·46. Of the merchandise imported at seaboard, lake, and river ports during the fiscal year 1884, an amount equal in value to $152,201,729 was imported in American vessels, and in value to $526,379,213 in foreign vessels. The merchandise exported in American vessels had a value of $112,520,723, and the merchandise exported in foreign vessels was valued at $667,739,372. Of the combined imports and exports of merchandise, about 17¼ per cent. was conveyed in American vessels and about 78¼ per cent. in foreign vessels.

The Indians.—Little trouble was caused by the Indians during the year. The policy of educating their children and encouraging the adoption of regular industries and civilized habits was continued. Eighty-one boarding schools, 76 day schools, and 6 industrial schools are maintained on the reservations under Government control, of which 5 boarding and 12 day schools were established during the year. There are 23 schools maintained by churches and private associations without expense to the Government. Three new industrial schools were put in operation during the year, one at Chilocco, Indian Territory, for 150 children; one at Lawrence, Kan., providing for 300; and one at Genoa, Neb., for 150. A new school-building was erected at Albuquerque, N. M., which will accommodate 150 pupils. At the industrial schools in several States, chiefly those at Hampton, Va., and Carlisle, Pa., 565 Indian pupils were maintained by the Government at a yearly cost of $167 each.

Life-Saving Service.—The Life-Saving Service had at the close of the last fiscal year 201 stations, of which 156 were on the Atlantic coast, 37 on the lakes, 7 on the Pacific, and 1 at the Falls of the Ohio, Louisville, Ky. The number of disasters within the field of their operations during the year was 337 to documented vessels, and 102 to smaller craft. The former carried 4,253 persons, of whom only 16 were lost, and their value was $7,075,975, that of their cargoes being $3,454,050. Of this total of $10,530,025 in property, all but $1,439,891 was saved. In the case of small craft 169 persons out of 175 were rescued, and $71,220 of the $77,915 of property imperiled was saved. The total number of shipwrecked persons that were succored at the various stations of the service was 532, to whom 1,819 days' relief in the aggregate was afforded.

Postal Service.—The number of post-offices on the 30th of June was 50,017, of which 3,414 were established during the year preceding, 1,260 being discontinued. The number filled by presidential appointment was 2,323; by selection of the Postmaster-General, 47,694. The number of appointments made during the fiscal year was 11,953. The number of money-order offices was 6,248, an increase of 386 during the year. The number of offices at which the free-delivery system was established was 159, the number of carriers employed being 3,890. The inland mail service covered an aggregate of 11,729 Star routes, with a total length of 226,779 miles, and an annual transportation of 81,109,052 miles, at a cost of $5,089,941; 117 steamboat routes, 15,591 miles, annual transportation 3,882,288 miles, at a cost of $596,573; 1,573 railroad routes of 117,160 miles, and an annual transportation of 142,541,892 miles, at a cost of $15,012,608, exclusive of $3,979,362 for railway postal clerks. The total amount of the receipts for postal service was $43,338,127; while the expenditures were $46,404,960.

Prime-Meridian Conference.—An International Conference was held at Washington, beginning on the 1st of October, for the purpose of agreeing upon a common prime meridian. Twenty-five nations were represented by delegates. On the 13th of October it was agreed to recommend the adoption of the meridian of Greenwich, which had been opposed by the delegates of France and Brazil. It was decided that longitude should be reckoned east and west from Greenwich to 180°, and that the universal day should begin for all the world at the moment of mean midnight of the initial meridian, and be counted from zero up to twenty-four hours. A full discussion of the subject may be found in the astronomical article of this volume, page 54.

Washington Monument.—The marble cap-stone, with the pyramidal apex of aluminum, which completed the monument to Washington at the national capital, was set on the 6th of December. The final dedication of the monument was deferred until Washington's birthday, Feb. 22, 1885. For full particulars as to the dimensions of the monument, and the progress of the work, see the article WASHINGTON MONUMENT, in the present volume.

UNITED STATES, FINANCES OF THE. The history of the national finances for 1884 was marked chiefly by the continued reduction of the public debt, contraction of the national-bank circulation, and coinage and accumulation in the treasury of the standard silver dollars, and by the failure to enact any legislation for the further reduction of the revenue, the relief of the national banks, or the stoppage of the silver coinage.

Receipts and Expenditures.—The receipts and expenditures of the National Government for the calendar years 1883 and 1884 were as shown in the following tables:

RECEIPTS.	1883.	1884.
Customs	$202,160,839 56	$186,596,819 86
Internal revenue	130,789,936 83	117,298,625 98
Sales of public lands	10,687,811 87	7,844,972 04
Tax on national banks	6,149,868 57	3,028,360 71
Profits on coinage, etc.	4,449,466 78	4,759,422 58
Customs fees, fines, etc	1,251,828 00	1,009,465 77
Fees, consular, patent, and lands	3,479,698 89	3,141,724 99
Repayment of interest by Pacific Railway Companies	1,508,108 68	1,385,448 01
Sinking fund for Pacific Railway Companies	1,286,039 46	2,541,245 68
Deposits for surveying public lands	557,518 56	687,949 74
Sales of Government property	412,289 36	379,084 82
Sale of Post-Office property in New York city	648,694 82	....
Donations toward liquidating the public debt	....	58,662 38
Japanese indemnity fund	1,389,583 99	....
Immigrant fund	247,361 50	200,366 00
Revenues of the District of Columbia	1,645,578 88	1,932,483 68
Miscellaneous	2,978,487 07	3,381,227 58
Total	$370,086,552 22	$333,697,830 17

EXPENDITURES.	1883.	1884.
Civil and miscellaneous	$67,047,450 24	$76,588,331 25
Indians	7,143,484 41	6,225,912 84
Pensions	67,772,009 72	58,187,982 51
Military establishment, including river and harbor improvements and arsenals.	45,573,637 64	40,358,715 96
Naval establishment, including vessels, machinery, and improvements at navy-yards	15,329,466 14	17,265,509 29
Interest on the public debt	55,704,556 57	52,723,796 14
Total ordinary expenditures	$258,570,604 72	$251,350,247 99
Judgments of Court of Alabama Claims	....	2,878,015 17
Total	$258,570,604 72	$254,228,263 16
Surplus revenue	$111,515,917 50	$79,469,567 01

The surplus revenue for 1884, with $9,495,727.94 drawn from the cash balance in the treasury, making a total of $88,965,294.95, was expended in the redemption of the public debt.

As compared with the calendar year 1883, there was a falling off in 1884 of $15,561,519.70 in the receipts from customs; $13,491,310.85 in internal revenue; $3,342,339.83 in sales of public lands; $3,121,502.86 in the tax on national banks, and $872,048.81 in the receipts from other sources, making a total reduction in the revenue of $36,388,722.05.

There was a decrease of $18,697,280.89 in the expenditures on the following accounts: War, $5,214,921.68; Indians, $917,571.57; pensions, $9,584,027.21, and interest on the public debt, $2,980,760.43. There was an increase of $12,418,896.18 in civil and miscellaneous expenses, including the payments on account of the Alabama claims, and of $1,936,043.15 in the expenditures on account of the navy, making a net reduction in the expenditures of $4,342,341.56, which, deducted from the decrease of $36,388,722.05 in the receipts, makes a falling off of $32,046,380.49 in the surplus revenue applicable to the reduction of the public debt.

The receipts from customs and internal revenue by quarter-years during 1883 and 1884 were:

CUSTOMS.

QUARTER.	1883.	1884.
First	$52,711,024 34	$50,221,593 84
Second	48,386,058 87	43,782,684 57
Third	57,402,975 67	54,102,858 65
Fourth	43,660,280 68	38,491,727 80
Total	$202,160,339 56	$186,598,819 86

INTERNAL REVENUE.

QUARTER.	1883.	1884.
First	$33,363,601 89	$26,686,466 58
Second	36,611,458 67	34,084,709 66
Third	29,662,078 60	28,639,010 76
Fourth	31,152,817 67	27,888,438 98
Total	$130,789,986 83	$117,298,625 98

The reduction in the duties on imports under the act of March 3, 1883, took effect July 1, 1883. The entire decrease in the amount of duties collected in the last half of 1884 and a large part of the decrease in the first half of the year, as compared with the preceding year, are due to a falling off in importations.

The following table shows in a condensed form the receipts and expenditures for the fiscal years ending June 30, 1883 and 1884:

RECEIPTS.	1883.	1884.
Customs	$214,706,496 93	$195,067.489 76
Internal revenue	144,720,368 98	121,586,072 51
Sales of public lands	7,955,864 42	9,810,705 01
Tax on national banks	9,111,008 85	3,108,730 13
Miscellaneous	21,793,842 77	18,946,872 51
Total	$398,287,581 95	$348,519,869 92

EXPENDITURES.	1883.	1884.
Civil and miscellaneous	$68,678,022 21	$70,920,433 70
War	48,911,382 93	39,429,603 36
Navy	15,283,437 17	17.292,601 44
Indians	7.362,590 34	6,475,999 29
Pensions	66,012,573 64	55.429,228 06
Interest on public debt	59,160,131 25	54,578,378 48
Total	$265,408,137 54	$244,126,244 33
Surplus revenue	$132,879,444 41	$104,393,625 59

There was an increase in 1884 in the receipts from sales of public lands over those for 1883 of $1,854,840.59; and a decrease of $19,639,007.17 in customs, $23,134,296.47 in internal revenue, $6,002,278.72 in tax on national banks, and $2,846,970.26 in miscellaneous receipts, making a net decrease in the total receipts of $49,767,712.03. The receipts from customs, though less than in any of the three preceding fiscal years, were greater than in any year before 1881 except 1871 and 1872. The receipts from sales of public lands were greater than in any year since 1855, when they were $11,497,049.07, and were exceeded in only two other years—1835 and 1836. The falling off in the tax on national banks was caused by the repeal of the duty on capital and deposits, which, although it took effect Jan. 1, 1883, did not affect the receipts until July 1, 1883, when the tax for the preceding six months fell due. The civil and miscellaneous expenses increased $2,242,411.49, and the expenditures for the navy $2,009,164.27. The expenditures for the War Department fell off $9,481,779.57; for Indians, $886,591.05; for pensions, $10,583,345.58; and for interest on the public debt, $4,581,752.77. The net decrease in the expenditures was $21,281,893.21. The interest payments were less than in any year since 1864. They reached the highest point in 1867, when they were $143,781,591.91. The decrease in the surplus revenue was $28,485,818.82. Notwithstanding this falling off, the surplus revenue was greater than in any year since 1867, with the exception of 1882 and 1883.

The receipts from the various sources of internal revenue during the last two fiscal years were as represented in the table in the adjoining column.

SOURCE.	1883.	1884.
Spirits	$74,368,775 20	$76,905,885 26
Tobacco	42,104,249 79	26,062,399 98
Fermented liquors	16,900,615 81	18,084,954 11
State banks and bankers	3,748,994 60	441 94
Miscellaneous	7,430,709 46	586,558 64
Total	$144,553,844 86	$121,590,089 88

The State of the Treasury.—The following is a comparative statement of the condition of the treasury on Dec. 31, 1883, and Dec. 31, 1884:

LIABILITIES.	Dec. 31, 1883.	Dec. 31, 1884.
Post-Office Department	$8,048,208 87	$8,973,821 28
Disbursing officers	32,178,362 28	29,071,460 97
Funds for retirement of bank circulation	38,814,572 60	42,442,478 10
Five per cent. redemption fund	14,511,274 72	12,487,117 86
Other funds held for special purposes	4,167,481 91	5,060,643 57
Matured bonds and interest	17,405,228 96	8,948,805 89
Gold certificates	91,031,920 00	119,631,150 00
Silver certificates	109,898,611 00	188,168,291 00
Clearing-House certificates	14,560,000 00	24,920,000 00
Balance	143,178,156 03	141,506,640 23
Total	$473,788,810 87	$526,205,407 90

ASSETS.	Dec. 31, 1883.	Dec. 31, 1884.
Gold coin	$152,608,893 46	$171,553,205 17
Gold bullion	66,406,846 17	63,422,646 78
Standard silver dollars	119,449,885 00	146,502,865 00
Fractional silver coin	27,224,126 88	29,194,355 52
Silver bullion	4,584,372 98	4,716,055 88
United States notes	39,644,248 72	36,499,575 42
Gold certificates	27,446,780 00	26,343,780 00
Silver certificates	13,180,890 00	23,302,390 00
National-bank notes	8,955,820 16	10,329,998 87
Minor coin and miscellaneous items	1,020,367 77	1,196,564 18
Deposits held by national-bank depositaries	13,818,080 33	13,144,086 68
Total	$473,788,810 87	$526,205,407 90

The gold coin and bullion on hand increased from $219,014,739.63 to $234,975,851.95, or $15,961,112.32. The gold certificates actually outstanding ran up from $63,585,140 to $93,287,420, or $29,702,280, making a reduction in the net gold belonging to the Government of $13,741,167.68—from $155,429,599.63 to $141,688,431.95. The standard silver dollars on hand increased $27,053,480, and the outstanding silver certificates increased $18,148,190—from $96,717,721 to $114,865,911. The silver dollars not represented by certificates in circulation ran up from $22,731,664 to $31,636,954. The United States notes owned by the treasury in excess of outstanding clearing-house certificates fell off from $25,084,248 to $11,579,575, or $13,504,673. The aggregate increase in the paper circulation of the country during the year by the issue of gold and silver certificates was $47,850,470.

The decrease in the gold and United States notes was largely due to payments by the treasury to the Clearing-House in New York. A rule of that association, adopted Nov. 12, 1878, prohibited payment of balances between the books at the Clearing-House in silver certificates or silver dollars. The act of July 12, 1882, provides that no national banking association shall be a member of a clearing-house in which gold and silver certificates are not receivable in payment of balances. Upon the passage of this act, the associated banks, by resolution, amended the rule of 1878 so far as it conflicted with the law; but, by a tacit agreement among the members of the association, silver certificates are not tendered at the Clearing-House, and the question of their receivability in payment of balances does not arise. The treasury, since 1878, has been a member of the association. It is usually a debtor in the clearing-house settlements. Prior to August, 1884, it paid balances chiefly in gold or gold certificates. Under this policy the available gold ran down from $155,429,600 on Jan. 1, 1884, to $116,479,979 on August 12. In the same time the silver dollars and bullion not represented by outstanding certificates increased from $27,266,037 to $48,603,958. The Assistant Treasurer was thereupon directed to pay one half of the Clearing-House balances in United States notes, of which a supply had accumulated beyond the needs of the treasury. This caused an immediate increase in the gold balance, though at the expense of the supply of United States notes. The stock of gold was also increased by the sale, during the latter part of the year, of exchange on the sub-treasuries in the West and South, payable in silver certificates, in return for deposits of gold in the sub-treasury in New York. By the end of the year the gold had risen $25,000,000 above the lowest point in August. But it has since run down again.

The changes in the paper circulation are thus shown, the amount of each class of currency held by the treasury being deducted:

	Dec. 31, 1883.	Dec. 31, 1884.
United States notes	$321,596,768	$335,101,441
National-bank notes	341,527,009	318,828,629
Gold certificates	68,585,140	98,287,420
Silver certificates	96,717,721	114,865,911
Total	$828,426,638	$867,083,401

The net increase in the paper circulation was $38,656,763.

The Public Debt.—The changes during the year in the character and amount of the public debt are shown by the following statement:

CHARACTER OF DEBT.	Dec. 31, 1883.	Dec. 31, 1884.
	Dollars.	Dollars.
Bonds at 4½ per cent	250,000,000 00	250,000,000 00
Bonds at 4 per cent	737,632,750 00	737,696,950 00
Bonds at 3 per cent	274,987,250 00	194,190,500 00
Refunding certificates at 4 per cent	315,150 00	260,000 00
Navy-pension fund at 3 per cent	14,000,000 00	14,000,000 00
Interest accrued on the above loans	11,331,895 22	11,186,846 96
Debt on which interest has ceased	15,138,795 26	6,993,925 26
Interest on matured debt	336,196 78	261,055 17
Demand and United States notes	346,739,696 00	346,739,256 00
Clearing-House certificates	14,560,000 00	24,920,000 00
Gold certificates	91,031,920 00	119,681,150 00
Silver certificates	109,898,611 00	138,168,291 00
Fractional currency	6,989,428 81	6,971,348 36
Unclaimed Pacific Railway interest	4,229 96	4,229 96
Total	1,873,415,924 48	1,851,023,547 71
Less cash in the Treasury	375,374,200 68	432,475,176 31
Net debt	1,498,041,723 80	1,418,548,371 40
Decrease in the debt during the year	....	79,493,352 40

The decrease during the year in the principal of the debt, excluding the gold, silver, and Clearing-House certificates, was as follows:

In bonds at 3 per cent	$86,649,250 00
In matured debt other than 3 per cent. bonds	2,242,370 00
In refunding certificates	55,150 00
In demand notes	440 00
In fractional currency	18,064 95
Total	$88,965,294 95

There were no refunding operations during the year, but the calling in for redemption of the 3 per cent. bonds which began in September, 1883, was kept up. Seven "calls" for the redemption of these bonds, amounting to $70,723,900, were issued, and eight "calls," amounting to $80,932,750, fell due during the year. No call was issued after September 26, the surplus revenues not being sufficient to warrant one, and none has been issued to this date (May 6, 1885). The difference between the actual redemptions and the maturing "calls" is due to the redemption during the year of bonds called in before Jan. 1, 1884.

The changes during the year in the denominations of United States notes outstanding are thus shown:

DENOMINATION.	Jan. 1, 1884.	Jan. 1, 1885.
	Dollars.	Dollars.
One dollar	30,778,487 80	26,528,148 80
Two dollars	27,686,588 20	26,840,217 20
Five dollars	73,079,670 00	77,588,815 00
Ten dollars	72,528,836 00	67,560,366 00
Twenty dollars	58,842,149 00	55,518,489 00
Fifty dollars	22,881,045 00	22,708,695 00
One hundred dollars	33,022,790 00	33,268,790 00
Five hundred dollars	14,524,000 00	15,015,000 00
One thousand dollars	14,587,500 00	22,272,500 00
Five thousand dollars	240,000 00	100,000 00
Ten thousand dollars	110,000 00	50,000 00
Total	347,681,016 00	347,681,016 00
Deduct for unknown denominations destroyed	1,000,000 00	1,000,000 00
Outstanding	346,681,016 00	346,681,016 00

The decrease in the one- and two-dollar notes was due to the insufficiency of the appropriation for printing United States notes, in consequence of which the issue of those denominations was suspended from March 1 to June 26.

The Secretary of the Treasury, in his annual report, suggested that in order to promote the circulation of gold and silver coin, an end be put to the circulation of the one- and two-dollar notes, and that the five-dollar notes be gradually retired, and the coinage of half and quarter eagles be increased. Congress took no action on these suggestions.

The National Banks.—During the year ending Nov. 1, 1884, there were organized 191 national banks, with an aggregate capital of $16,042,230, to which $3,866,230 in circulating notes were issued. Ten of these banks, with $810,000 capital, were organized in the Eastern States; twenty-five, with $1,812,250 capital, in the Middle States; thirty, with $2,991,100 capital, in the Southern States; one hundred and two, with $8,905,880 capital, in the Western States; five, with $380,000 capital, in the Pacific States; and nineteen, with $1,143,000 capital, in the Territories. Thirty-one banks went into voluntary liquidation during the year; and eleven, with $1,285,000 capital, failed. Nov. 1, 1884, there were in operation 2,671 banks.

The following statement shows the condition of the national banks, Dec. 20, 1884, there being 2,664 banks then in operation and reporting:

RESOURCES.

Loans and discounts	$1,233,546,544 35
Overdrafts	5,655,682 09
United States bonds to secure circulation	317,586,050 00
United States bonds to secure deposits	16,740,000 00
United States bonds on hand	12,305,900 00
Other stocks, bonds, and mortgages	78,449,353 07
Due from approved reserve agents	121,161,976 80
Due from other national banks	69,459,384 45
Due from State banks and bankers	18,829,912 01
Real estate, furniture, and fixtures	49,889,986 06
Current expenses and taxes paid	9,670,996 14
Premiums paid	11,928,447 15
Clearing-house loan certificates	1,870,000 00
Checks and other cash items	11,924,158 89
Exchanges for clearing-house	75,195,905 95
Bills of other national banks	22,377,965 00
Fractional currency	456,778 96

Brought forward.		
Specie, viz.:		
Gold coin	$53,989,911 57	139,747,079 58
Gold treasury certificates	50,559,910 00	
Gold clearing-house cert's	22,231,000 00	
Silver coin	7,985,487 96	
Silver treasury certificates	5,080,770 00	
Legal-tender notes		76,369,555 00
United States certificates of deposit for legal-tender notes		19,040,000 00
Five per cent. redemption fund with Treasurer		13,394,783 37
Due from Treasurer other than redemption fund		1,547,524 15
Aggregate		$2,297,143,474 27
LIABILITIES.		
Capital stock paid in		$524,089,065 00
Surplus fund		146,867,119 06
Other undivided profits		70,711,369 95
National-bank notes issued	$285,157,930 00	
Amount on hand	4,960,887 00	
Amount outstanding		280,197,043 00
State-bank notes outstanding		174,645 00
Dividends unpaid		1,331,421 54
Individual deposits		987,649,055 68
United States deposits		10,655,803 72
Deposits of United States disbursing officers		3,749,969 85
Due to other national banks		187,296,343 80
Due to State banks and bankers		72,573,384 43
Notes and bills rediscounted		8,433,724 67
Bills payable		3,415,524 07
Aggregate		$2,297,143,474 27

As compared with the statement for Dec. 31, 1883, the paid-in capital increased from $511,837,575 to $524,089,065; the surplus fund and undivided profits from $208,588,197.04 to $217,578,489.01; the specie held, from $114,276,158.04 to $139,747,079.58, and the United States notes and certificates representing them on hand, from $91,399,796 to $95,409,555; the individual deposits ran down from $1,106,453,008.23 to $987,649,055.68; and the loans and discounts from $1,302,223,212.85 to $1,228,546,544.85. The falling off in deposits and in loans and discounts is the result of the financial crisis of May, 1884, which led to the failure of several national banks and of a large number of private banks, brokers, and railway and other corporations, and from which neither the banks nor the commercial community had recovered at the end of the year.

The circulation shown to be outstanding by the reports of the banks, Dec. 20, 1884, was $280,197,043, as compared with $304,944,131, Dec. 31, 1883. This falling off of $24,747,088 represents the voluntary surrender of circulation by the banks. It was chiefly due to the calling in for redemption of the bonds deposited as security for their circulating notes, and their inability to replace those bonds with others on which circulation could be issued at a profit. The national-bank notes in actual circulation, as shown by the books of the treasury, including those of banks which have failed, gone into liquidation, or made deposits for the reduction of their circulation, fell off during the year from $350,482,829 to $329,158,628. The lawful money deposited during the year for the retirement of bank circulation was $34,246,461, making the total deposits on this account $234,163,413. The circulation redeemed from these deposits during the year amounted to $30,118,401, making the total redemptions $190,500,845, and leaving a balance of $43,662,568 in lawful money on deposit at the close of the year.

The redemptions of bank-notes by the Treasurer of the United States under the act of June 20, 1874, during the years 1883 and 1884, are thus shown:

HOW DISPOSED OF.	1883.	1884.
Notes fit for circulation, assorted and returned to the banks which issued them	$22,782,100	$37,264,300
Notes unfit for circulation, assorted and destroyed	88,266,492	102,029,468
Total	$111,048,592	$139,293,768

The increase in redemptions during the year 1884 was $28,245,176, or more than 25 per cent.

The kinds and amounts of United States bonds held by the Treasurer as security for circulating notes issued to national banks at the close of the years 1883 and 1884 are shown below:

CLASSES OF BONDS HELD.	Dec. 31, 1883.	Dec. 31, 1884.
Six per cents	$3,538,000	$3,519,000
Four and one half per cents	42,584,000	49,433,950
Four per cents	107,512,300	118,332,900
Three and one half per cents	422,000	....
Three per cents	193,481,900	147,369,200
Total	$347,538,900	$318,655,050

The aggregate deposits and withdrawals of the various classes of bonds held on this account were:

CLASSES OF BONDS.	Deposited.	Withdrawn.
Six per cents	$65,000	$84,000
Four and one half per cents	12,651,400	5,801,450
Four per cents	17,902,700	7,082,100
Three and one half per cents	....	422,000
Three per cents	12,830,950	58,943,650
Total	$43,450,050	$72,333,200

The net increase in the 4½ per cent. bonds was $6,849,950, and in the 4 per cents, $10,820,600. The net decrease in the 6 per cents was $19,000; in the 3½ per cents, $422,000, and in the 3 per cents, $46,112,700. The net decrease in the total on deposit was $28,883,150.

The continued calling in for redemption of the 3 per cent. bonds, which form so large a part of the basis of the national-bank currency, and the contraction of the bank circulation through the surrender by the banks of a large share of the issues secured by the bonds called in, continued to cause discussion during the year. The President, in his annual message, thus referred to the subject:

> The 3 per cent. bonds of the Government to the amount of more than $100,000,000 have, since my last annual message, been redeemed by the treasury. The bonds of that issue still outstanding amount to little over $200,000,000, about one fourth of which will be retired through the operations of the sinking fund during the coming year. As these bonds still constitute the chief basis for the circulation of the national

banks, the question how to avert the contraction of the currency caused by their retirement is one of constantly increasing importance. It seems to be generally conceded that the law governing this matter exacts from the banks excessive security, and that, upon their present bond deposits, a larger circulation than is now allowed may be granted with safety. I hope that the bill which passed the Senate at the last session, permitting the issue of notes equal to the face value of the deposited bonds, will commend itself to the approval of the House of Representatives.

The Secretary of the Treasury, in his annual report, said:

It will be noted that the circulation decreased $25,156,452 during the year. The bonds deposited to secure circulation, which decreased $9,613,350 in 1883, were still further reduced $25,442,300 during 1884—a reduction of $35,055,650 in two years. The 3 per cent. bonds of the United States have now been reduced to less than $200,000,000, and they will be further reduced through the operations of the sinking fund by nearly $50,000,000 each year. The market prices of the 4 per cent. and the 4½ per cent. bonds of the United States have declined somewhat during the past year; but that these bonds are still too high to enable banks to base circulation upon them at a profit is plain from the fact that the circulation has been voluntarily decreased more than $25,000,000 during the year. Among the measures of relief recommended in the last report were an increase of the issue of notes to the face value of the bonds deposited, a bill to authorize which passed the Senate during the last session of Congress; the acceptance of the 3·65 per cent. bonds of 1924 of the District of Columbia, the payment of which is guaranteed by the United States; and a repeal of the tax on circulation. I earnestly commend these propositions to the wisdom of Congress, believing that, if adopted, they will enable banks which now contemplate a surrender of their circulation in consequence of the calling of their 3 per cent. bonds to maintain it on the long-time bonds with a small profit, or at least without loss. Inasmuch as about $135,000,000 of the circulation of banks is based upon our 3 per cent. bonds, which are now redeemable and being rapidly redeemed, remedial action can not be postponed beyond the present session if a rapid reduction of our bank-note circulation is to be avoided. The subject is a very important one, and should receive immediate attention. These, however, would be measures of temporary relief only.

The Comptroller of the Currency discussed the subject at great length in his annual report.

The House of Representatives, by a two-third vote, set apart Thursday, Jan. 15, 1885, for the consideration of the so-called "McPherson bill," authorizing the issue to national banks of circulation equal to the par value of the bonds deposited as security, which passed the Senate at the preceding session. When the bill came up in the House, it was opposed, not only by the opponents of any legislation on the subject, but by the advocates of the "Potter bill," which provided for issuing, in lieu of the 4 and 4½ per cent. bonds, 2½ per cent. bonds having an equal time to run, paying out of the surplus revenues a premium on the bonds taken up equal to the present worth of the surrendered interest computed at 3 per cent., and for reducing the tax on circulation from 1 to ½ per cent. a year. Among the opponents of the measure were Mr. O. B. Potter, the author of the "Potter bill," and Mr. A. S. Hewitt. Mr. Potter said that the measure would increase the premium on the Government bonds and aggravate the difficulty of the situation, besides weakening the security for the bank circulation. Mr. Hewitt opposed the bill because it would "give us expansion when we need contraction," and would not prevent the payment and retirement of the bonds on which the bank circulation is based. Before a vote was reached on the bill, the House by a vote of 130 to 112 adjourned for the day. This vote was accepted as settling the fate of the measure, and no further attempt was made to bring it before the House.

The Coinage.—The deposits of gold with the several mints and assay-offices during the fiscal year 1884 amounted to $46,326,678.66, of which $29,079,596.33 consisted of gold bullion of domestic production; $6,023,734.45 of foreign bullion; $9,095,461.45 of foreign coin; $263,117.17 of United States coin, and $1,864,769.26 of jewelry, old plate, etc. The silver purchased for coinage and contained in bullion deposits amounted at its coining value to $36,520,290.36, of which $31,463,113.88 consisted of bullion of domestic production; $2,524,742.58 of foreign bullion; $1,984,865.62 of foreign coin; $152,031.20 of United States coin, and $396,037.18 of plate, jewelry, etc. Including redeposits, the total amount received and operated upon by the mints and assay-offices was $87,955,158.92.

The coinage executed at the mints of the United States during the calendar year 1884 was:

DENOMINATION.	Number of pieces.	Value.
GOLD:		Dollars.
Double eagles	997,210	19,944,200 00
Eagles	211,080	2 110,800 00
Half eagles	384,450	1,922,250 00
Three dollars	1,106	3,318 00
Quarter eagles	1,993	4,982 50
Dollars	6,206	6,206 00
Total gold	1,602,045	23,991,756 50
SILVER:		
Standard dollars	28,136,875	28,136,875 00
Half dollars	5,275	2,637 50
Quarter dollars	8,875	2,218 75
Dimes	3,981,849	398,184 90
Total silver	32,082,874	28,534,866 15
MINOR COIN:		
Five cents	11,278,942	563,697 10
Three cents	5,642	169 26
One cent	23,261,742	232,617 42
Total minor coin	34,541,326	796,483 78
Total coinage	68,225,745	58,323,106 43

The coinage of silver dollars under the act of Feb. 28, 1878, to Dec. 31, 1884, amounted to $189,561,994. Of this amount $146,502,865 was held by the treasury, and $43,059,129 was in circulation. Of the dollars held by the treasury, $114,865,911 was represented by outstanding silver certificates, leaving $31,636,954 uncovered by certificates and owned by the Government.

Adverting to the condition of the funds in the treasury, Secretary McCulloch, said in his annual report:

> I have been forced to the conclusion that, unless both the coinage of silver dollars and the issue of silver certificates are suspended, there is danger that silver, and not gold, may become our metallic standard. This danger may not be imminent, but it is of so serious a character that there ought not to be delay in providing against it. Not only would the national credit be seriously impaired if the Government should be under the necessity of using silver dollars or certificates in payment of gold obligations, but business of all kinds would be greatly disturbed; not only so, but gold would at once cease to be a circulating medium, and severe contraction would be the result.

The President in his annual message said:

> I concur with the Secretary of the Treasury in recommending the immediate suspension of the coinage of silver dollars and of the issuance of silver certificates. This is a matter to which, in former communications, I have more than once invoked the attention of the national legislature. It appears that annually for the past six years there have been coined, in compliance with the requirements of the act of Feb. 28, 1878, more than twenty-seven million silver dollars. The number now outstanding is reported by the Secretary to be nearly one hundred and eighty-five million, whereof but little more than forty million, or less than 22 per cent., are in actual circulation.

Feb. 11, 1885, a letter signed by ninety-eight Democratic members of the House of Representatives was addressed to President-elect Cleveland, expressing the fear that "the banks, the bondholders, and those having fixed incomes" were making a united effort to commit him and his Administration against the continued coinage of the silver dollar, and the hope that he would not do anything that would place his Administration in opposition to "the policy of the coinage of both gold and silver." Mr. Cleveland replied, February 24, that a financial crisis under the operation of the act of Congress of Feb. 28, 1878, was close at hand; that the vaults of the treasury were heaped full of silver coins worth less than 85 per cent. of the gold dollar prescribed by law as the unit of value, and that the sum of gold in the treasury available for the payment of the gold obligations of the United States and for the redemption of the United States notes, if not already encroached upon, was perilously near such encroachment.

To this letter no direct reply was made, but a statement was published setting forth at length the views of the opponents of the suspension of the silver coinage. They said that, while it is true that silver bullion is worth less than 85 per cent. of the gold dollar, "silver coins which are admitted to use the same as gold are equal in value to gold coin"; that, if the Secretary of the Treasury should pay out more silver and less gold, the character of the reserve would change, the matter being entirely under his control; that no obligations exist, or ever did exist, which under our Constitution are specifically payable in gold; that the proposition that the continued coinage of silver at the rate of $28,000,000 a year will drive gold out of circulation in the near future or force it to a premium, is not sustained by facts or sound reasoning; that under "Gresham's law" the gold can be expelled only by forcing into circulation, in addition to the $750,000,000 of other currency than gold in use, either silver or paper equal to the entire volume of gold now in circulation; and that an "unprecedented contraction in the actual volume of our currency," a fall of prices, and a scaling down of the purchasing power of the dollar, can not occur at the same time.

The House Committee on Appropriations, by a vote of eight to seven, inserted in the sundry civil appropriation bill a paragraph, authorizing the Secretary of the Treasury, in his discretion, to suspend, in whole or in part, the purchase of silver bullion and the coinage of silver dollars during the fiscal year beginning July 1, 1885. Feb. 26, 1885, the chairman of the committee submitted a resolution to suspend the rules, so as to discharge the Committee of the Whole from the further consideration of the bill, and to consider the same for four hours, that time to be occupied in debate on the clauses relating to the suspension of silver coinage and the World's Industrial and Cotton Exposition, and the bill to be subject to amendments only to strike out or amend those clauses, after which the previous question should be considered as ordered. The resolution was defeated by 118 yeas to 152 nays. This vote was accepted as expressing the views of the House on the suspension of the coinage of the silver dollar, and the bill was accordingly submitted without the silver clause. No direct reference was made to the silver question in the President's inaugural address.

Imports and Exports.—The following table shows by articles the value of the merchandise imported into the United States during the fiscal year 1884, in the order of their magnitude:

ARTICLES.	Values, 1884.
Sugar and molasses	$103,884,274
Wool, and manufactures of	53,542,292
Silk, and manufactures of	49,949,128
Coffee	49,686,705
Iron and steel, and manufactures of	41,464,599
Chemicals, drugs, etc	33,464,965
Flax, hemp, jute, and manufactures of	33,463,398
Cotton, and manufactures of	30,454,476
Hides and skins, other than fur-skins	22,350,906
Fruits, including nuts	19,812,106
Wood, and manufactures of	14,676,066
India-rubber and gutta-percha, and manufactures of	14,064,141
Tea	13,686,058
Leather of all kinds, and manufactures of	11,812,064
Precious stones, not set, including diamonds	9,245,078
Tobacco, and manufactures of	9,238,522
Animals, living	8,312,496
Furs, and manufactures of fur	8,178,194
Fancy articles	8,082,427
Glass and glassware	7,552,498
Breadstuffs	7,301,676
Articles the produce or manufacture of the United States, returned	6,188,960
Wines	5,660,833
Paper-stock, crude	5,638,647
Fish	5,578,885
Tin, bars, blocks, or pigs	5,490,054
Earthen, stone, and china ware	4,954,818
Seeds	4,836,618
Metals and metal compositions	3,954,186
Books, maps, engravings, etc	3,085,629
Spices, ground and unground	3,008,08

Brought forward.	
Buttons, except of brass, gilt, or silk, and materials	3,480,174
Oils	3,091,529
Vegetables	2,677,469
Eggs	2,677,360
Coal, bituminous	2,558,164
Clocks and watches, and parts of	2,483,103
Rice	2,471,437
Hair, and manufactures of	2,326,646
Household and personal effects	2,249,173
Spirits, distilled, and compounds	2,111,779
Provisions	1,843,452
Fertilizers	1,765,447
Musical instruments, and parts of	1,749,349
Paper, and manufactures of	1,714,419
Salt	1,668,331
Cocoa, crude	1,644,766
Paints and colors	1,318,930
Bristles	1,201,735
Art-works	1,192,204
Malt-liquors	1,179,111
Hay	999,144
Ivory, animal and vegetable	967,893
Marble and stone, and manufactures of	957,769
Cork-wood or cork-bark, unmanufactured	939,986
Jewelry, and manufactures of gold and silver	910,827
Corsets	843,159
Cement	829,093
Brushes	591,733
Soap	437,955
Bark, hemlock	406,278
Bolting-cloths	396,158
Hops	304,297
All other articles	14,109,629
Total	$667,697,693

The value of the imports fell off from $723,180,914 in the fiscal year 1883 to $667,697,693 in 1884, a decrease of $55,483,221.

The following shows the commerce for the fiscal year 1884 with those countries our exports to which exceeded the imports from them:

COUNTRIES.	Imports.	Exports.
Great Britain and Ireland	$162,549,608	$386,288,386
Netherlands	4,872,988	16,553,282
Belgium	10,928,160	22,588,655
Russia	2,779,659	11,296,812
British N. American possessions	38,399,835	44,306,196
Spain	6,207,520	11,895,190
British Australasia	4,378,465	9,887,826
Mexico	9,016,486	12,704,299
Portugal	1,262,800	4,618,931
Denmark	545,886	3,804,909
Chili	537,986	3,270,568
United States of Colombia	3,391,843	6,381,821
Hong-Kong	1,504,530	3,083,849
Newfoundland and Labrador	616,005	2,105,254
Gibraltar	4,748	1,118,166
Argentine Republic	4,110,088	5,074,593
Miquelon, Langley, and St. Pierre Islands	565	449,484
Azore, Madeira, and Cape Verd Islands	58,416	590,845
Hayti	2,3[illegible]9,173	2,770,109
Danish West Indies	337,8[illegible]3	590,040
British Honduras	262,791	431,064
All other countries in Asia	74,129	228,746
French Guiana	2,321	108,607
Portuguese Africa	4,249	82,521
Liberia	57,427	131,060
French possessions	403,097	436,719
Roumania	....	2,778
Total	$255,241,533	$550,159,687

The following table gives a similar statement for those countries our imports from which exceeded the exports to them.

The total value of the imports and exports during the fiscal year was $1,408,211,302, as against $1,547,020,316 in 1883, a decrease of $138,809,014. The exports of domestic merchandise fell off $79,258,780, from $804,223,632 to $724,964,852; and of foreign merchandise $4,067,013, from $19,615,770 to $15,548,757. The total exports were $740,513,609, as against $823,839,402 in 1883, a falling off of $83,325,793.

COUNTRIES.	Imports.	Exports.
Cuba	$57,181,497	$10,910,753
Brazil	50,265,889	8,695,659
France	70,842,413	50,899,885
Switzerland	16,464,034	4,016
British East Indies	19,550,453	3,714,767
Spanish, other than Cuba and Porto Rico	12,339,581	194,925
China	15,616,798	4,626,578
Japan	11,274,485	2,525,539
Italy	16,706,357	8,071,080
Austria	7,744,965	2,429,638
Porto Rico	6,890,456	2,224,615
Germany	65,019,163	60,603,059
Hawaiian Islands	7,925,965	3,528,368
Venezuela	6,674,041	2,427,961
Central American states	6,161,227	3,177,558
British Guiana	4,095,586	1,884,416
Turkey	3,551,141	1,455,488
Dutch East Indies	3,507,727	2,110,828
French West Indies	3,136,402	1,890,118
Other British possessions	1,248,928	112,746
Peru	2,077,645	1,070,528
All other countries in Africa	1,105,264	128,809
British West Indies	9,791,616	8,849,314
Greece	1,039,984	185,485
Uruguay	2,128,981	1,365,418
All others in South America	1,346,612	629,894
British Africa	2,224,150	1,582,969
Sweden and Norway	3,049,838	2,448,163
Dutch Guiana	623,118	519,475
Santo Domingo	1,439,858	1,294,170
French Africa	851,691	242,188
Greenland, Iceland, Faroe Islands	106,029	....
All other countries	213,107	142,605
Dutch West Indies	647,592	583,958
Spanish Africa	113,672	80,081
Total	$412,456,160	$190,858,973

The value of the exports of the products of agriculture, manufactures, mining, forestry, and the fisheries, during the fiscal year 1884, is thus shown:

PRODUCTS OF—	Value.	Per cent. of total.
Agriculture	$536,315,818	73·98
Manufactures	111,330,242	15·35
Mining (including mineral oils)	56,822,529	7·84
Forestry	9,466,330	1·31
The fisheries	5,614,111	·77
All other commodities	5,417,322	·75
Total	$724,964,852	100·00

The value of the exports of agricultural products fell off from $619,269,449 in 1883 to $536,315,818 in 1884, while the exports of all other commodities increased from $184,954,183 to $188,649,534.

Goods entered for Consumption, and Duties collected.—The following statement shows the value of dutiable merchandise entered for consumption * into the United States, with the duties

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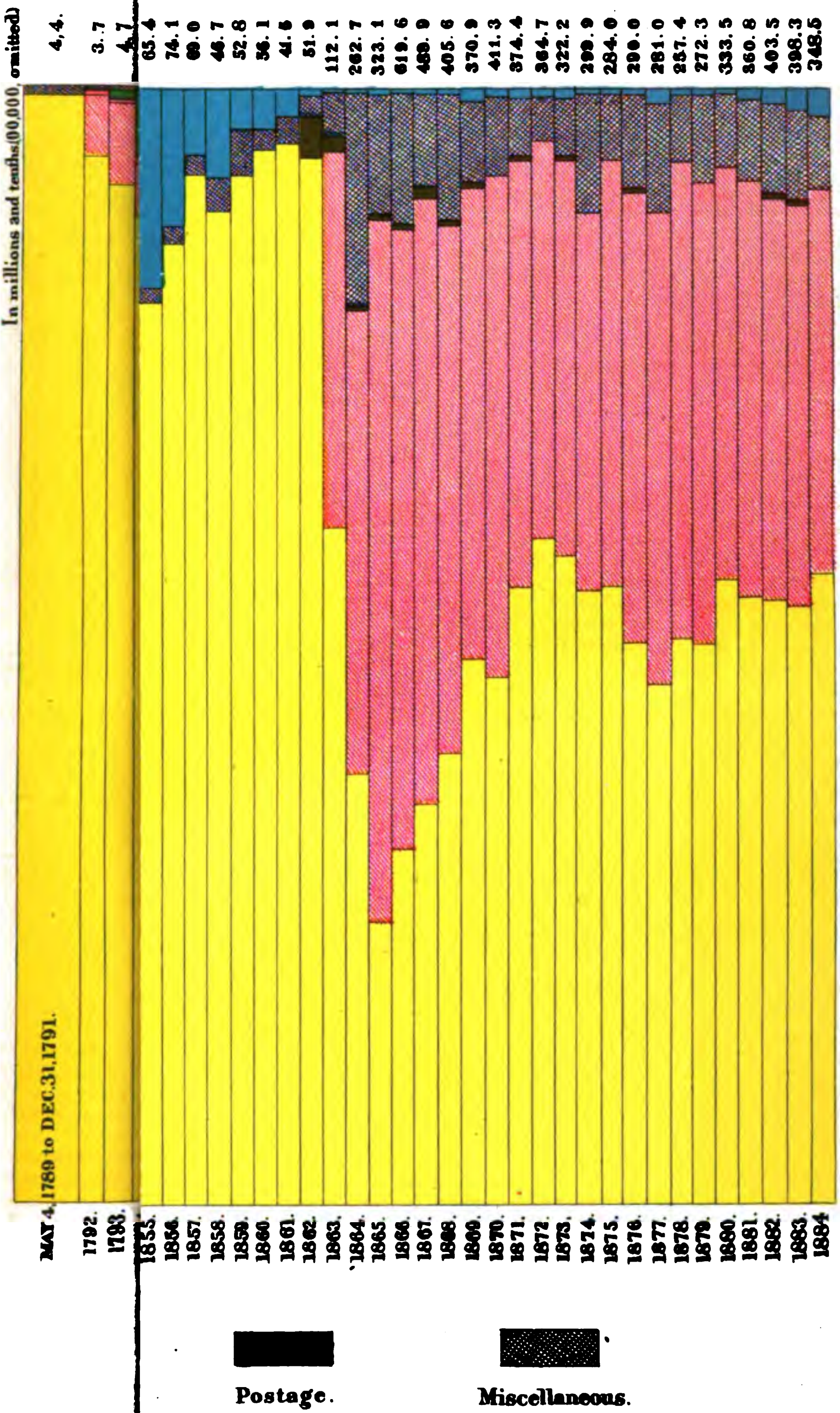
* The value of the merchandise entered for consumption amounted to $667,575,338.91, and embraced both goods entered for immediate consumption on arrival in the United States, and goods withdrawn from warehouse during the year for consumption. The value of the imports into the United States amounted to $667,697,693, embracing goods entered for immediate consumption on arrival, goods entered for transportation to interior ports without appraisement, and goods entered for warehousing awaiting the payment of duties.



enue of the United States.

collected thereon, during the year ended June 30, 1884; the duties collected on each commodity or class of commodities, and the average ad-valorem rates of duty:

ARTICLES.	Values.	Ordinary duties.	Average ad-valorem rates of duty.
			Per cent.
Sugar, molasses, and confectionery	$94,392,569 68	$48,923,465 20	51·83
Wool and manufactures of	55,078,170 85	32,001,225 87	58·10
Iron and steel, and manufactures of	42,917,747 86	14,799,117 05	34·48
Silk, manufactures of	38,030,574 00	18,962,210 34	49·86
Flax, hemp, jute, and manufactures	33,814,270 95	9,418,484 31	27·85
Cotton, manufactures of	28,638,479 47	11,479,941 89	40·09
Fruits, including nuts	16,500,858 66	4,420,556 27	26·79
Chemicals, drugs, etc.	13,089,655 61	3,716,489 51	28·39
Leather and manufactures of	11,362,890 57	3,158,554 88	27·80
Wood and manufactures of	9,387,882 80	1,609,809 82	17·15
Jewelry and precious stones	9,377,545 56	1,024,246 49	10·92
Tobacco and manufactures of	8,697,750 68	6,945,652 35	79·86
Fancy articles	8,052,918 78	2,898,444 25	35·99
Glass and glassware	7,553,184 68	4,205,688 22	55·68
Spirits and wines	6,792,109 28	5,730,646 02	84·37
Breadstuffs	6,229,664 90	907,125 05	14·56
Furs and manufactures of	5,694,787 62	1,185,467 95	20·81
Earthen, stone, and china ware	4,613,607 45	2,570,506 96	55·72
Hats, bonnets, hoods, and materials	4,054,760 86	882,679 59	21·77
Seeds	3,736,724 66	717,864 60	19·21
Buttons and materials	3,581,231 81	829,115 50	23·15
Animals	3,183,432 88	636,686 56	20·00
Books, maps, engravings, etchings, etc	2,754,681 58	688,666 74	25·00
Coal and coke	2,589,958 08	589,746 59	22·77
Clocks and watches	2,466,858 75	637,405 59	25·84
Vegetables	2,445,867 53	457,857 74	18·72
Metals and manufactures	2,248,814 07	770,758 59	34·27
Rice	2,070,410 48	1,683,279 53	81·30
Provisions (meat and dairy)	1,850,806 04	412,686 94	22·30
Musical instruments	1,798,108 85	449,527 09	25·00
Paper and manufactures of	1,761,855 80	388,680 81	22·06
Fish	1,679,510 98	352,176 61	20·97
Salt	1,527,455 18	762,201 58	49·90
Oils	1,305,242 64	328,275 81	25·15
Paints and colors	1,301,790 64	420,870 52	32·33
Bristles	1,185,887 00	148,245 30	12·61
Malt-liquors	1,119,199 67	533,240 64	47·64
Hay	999,142 66	237,505 14	23·77
Stone and manufactures of	950,216 79	419,658 22	44·16
Corsets and cloth	866,690 75	303,341 76	35·00
Cement	825,094 98	165,018 99	20·00
Matting and mats	769,448 20	153,889 63	20·00
Art-works	637,878 67	191,363 11	30·00
Brushes	622,665 43	186,799 64	30·00
Brass and manufactures	470,484 70	200,808 68	42·69
Soap	460,569 63	113,157 62	24·57
Glue	451,363 00	90,272 40	20·00
Explosives	445,490 55	349,310 89	70·84
Hair and manufactures	433,087 90	124,781 58	28·80
Gold, silver, and manufactures	364,270 84	104,078 48	28·57
Rubber and gutta-percha manufactures	310,989 89	91,610 51	29·46
Hops	303,260 00	55,751 76	18·38
Copper and manufactures	291,602 66	85,781 96	29·42
Grease	258,508 85	35,650 64	13·80
Zinc and manufactures	251,476 64	115,435 89	45·90
Clays or earths	233,211 29	71,320 78	30·58
Carriages and parts of	193,889 99	67,861 50	35·00
Ginger-ale or ginger-beer	169,180 24	33,836 04	20·00
Cocoa and cocoa-butter	121,918 83	11,091 84	9·10
Umbrellas and parasols	111,129 00	45,848 80	41·26
Tin, manufactures of	53,725 49	48,127 05	89·58
All other articles	2,863,237 98	900,426 91	31·45
Total dutiable	$456,295,123 71	$189,844,995 67	41·61
Total free of duty	211,280,265 20	....	.....
Additional and discriminating duty	....	437,840 61	.....
Total	$667,575,388 91	$190,282,836 28	28·50

Of the total duties collected, 25·77 per cent. was collected on sugar, molasses, and confectionery; 16·86 per cent. on wool and its manufactures; 9·99 per cent. on manufactures of silk; 7·80 per cent. on iron and steel and their manufactures; 6·05 per cent. on manufactures of cotton; and 4·96 per cent. on flax, hemp, jute, and their manufactures. The aggregate amount of duties collected on these six commodities and classes of commodities was $135,584,444.66, and was 71·48 per cent. of the total amount.

The total amount of duties that were collected and paid into the treasury during each of the last two fiscal years, on the six commodities that yielded the greatest revenue, is shown in the table at the top of the succeeding page.

COMMODITY.	1883.	1884.
Sugar, molasses, sugar-candy, and confectionery	$46,172,879	$48,928,465
Wool and its manufactures	32,820,598	32,001,226
Manufactures of silk	19,654,946	18,962,210
Iron and steel and their manufactures	16,590,504	14,799,117
Manufactures of cotton	12,284,871	11,479,942
Flax, hemp, jute, etc., and their manufactures	10,149,908	9,418,484

Under the act of March 3, 1883, the average ad-valorem rate of duty on all imported merchandise entered for consumption was reduced from 42·64 per cent. during the fiscal year 1883 to 41·70 per cent. during 1884, a fall of ninety-four hundredths (·94) in the rate.

The Reduction of Taxation.—April 15, 1884, the House of Representatives, by a vote of 140 to 138, decided to proceed to the consideration of the so-called "Morrison bill," to reduce import duties and "war-tariff taxes," which had been reported from the Committee of Ways and Means on March 11. The bill, after being exhaustively debated, came up for final consideration in Committee of the Whole on May 6. Mr. Converse, a Democratic representative from Ohio, moved to strike out the enacting clause. The motion was carried by a vote of 156 to 151. The action of the committee being reported to the House, was concurred in by a vote of 159 to 155, only ten members not voting.

The President, in his annual message of 1883, said:

> In my annual message of 1882, I recommended the abolition of all excise taxes except those relating to distilled spirits. This recommendation is now renewed. In case these taxes shall be abolished, the revenues that will still remain to the Government will, in my opinion, not only suffice to meet its reasonable expenditures, but will afford a surplus large enough to permit such tariff reduction as may seem to be advisable when the results of recent revenue laws and commercial treaties shall have shown in what quarters those reductions can be most judiciously effected.

The Secretary of the Treasury, in his annual report, discussed the condition of the foreign trade of the country, and urged that steps be taken to increase it. To this end he recommended the appointment of a commission, "composed of men not wedded to free trade or protection—fair-minded men, who would prosecute the inquiry thoroughly, comprehensively, and impartially." Continuing the consideration of the subject, he said:

> In the commencement of its work the commission should, I think, regard the following points as being settled:
>
> 1. That the public revenues are not to be in excess of what may be required for the support of the Government and the gradual reduction of the public debt.
>
> 2. That our manufactures, which under the fostering care of the Government have attained such gigantic proportions, and whose prosperity is essential to the welfare of all other interests, are not to be put in jeopardy by radical and sweeping changes in the tariff; and that all reductions of import duties should be made with a view to their ultimate advantage by opening to them markets from which they are now in a large degree excluded. . . .
>
> Owing to the shortness of the time allowed to me for the consideration of the subject, I am not prepared to name the articles upon which duties should be removed or reduced. This much, however, it may be proper for me to recommend:
>
> 1. That the existing duties upon raw materials which are to be used in manufacture should be removed. This can be done in the interest of our foreign trade.
>
> 2. That the duties upon the articles used or consumed by those who are the least able to bear the burden of taxation should be reduced. This also can be effected without prejudice to our export trade.
>
> In regard to our internal revenue taxes, I have to say that, as these taxes, with the exception of the tax upon whisky, ought not to be and will not be needed for revenue if appropriations are kept within reasonable bounds and rigid economy is established in all branches of the public service, I see no good reason for their continuance. The tax upon tobacco should, in my judgment, be removed. The tax upon whisky could not be repealed without a disregard of public sentiment, nor without creating a necessity for higher duties upon imported goods; but while this is true, the tax upon the alcohol used in manufacturing might be removed with decided benefit.

Congress did not adopt these recommendations, nor was any action on the subject of taxation taken at the second session of the Forty-eighth Congress, which closed March 3, 1885.

The colored chart shows the proportion of the total receipts from each principal source of revenue for each year since the establishment of the Government down to and including the fiscal year 1884.* There were no receipts from postage in the year 1884, there being a deficit in the postal revenues, and the receipts from direct tax ($70,720.75) were too small to be indicated on the chart.

UNIVERSALISTS. The "Universalist Register" for 1885 gives the following summary of the statistics of the Universalist churches in the United States, Canada, and Scotland: 1 General Convention; 22 State conventions; 948 parishes, with 37,268 families; 687 churches, with 34,349 members; 611 Sunday-schools, with 51,985 members; 768 church edifices, having a value above indebtedness of $7,092,264; 669 clergymen in fellowship, and 14 licensed lay preachers. Of the members, 522 are in Canada and 120 in Scotland.

The educational institutions comprise twelve colleges, theological schools, seminaries, and academies, which report 109 professors and teachers, 1,227 students, and property valued at $2,373,000.

The Universalist Publishing-House returns about $45,000 of assets, and publishes and owns the copyrights of 150 volumes and 6 periodicals. The Chapin Home possesses property, including the building in New York city, valued at $129,162, and had 56 inmates.

General Convention.—The Universalist General

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* As the space allotted to the total receipts from all sources is the same for each year, however much that total may vary, it will be understood that the colored spaces furnish no basis for a comparison between the receipts from the same source for different years, but only indicate the proportion which the receipts from any source for any year bear to the total receipts for the year. For example, the customs receipts for 1884 were less than for 1883, though the yellow space indicating them is larger.

Convention met at Peoria, Ill., October 21. Mr. John D. W. Joy presided. Twenty-one ecclesiastical jurisdictions were represented in the sessions by eighty-one delegates. The treasurer reported that his receipts for the year had been $23,006, and his payments $16,269. The amounts of the convention funds were returned as follows: Murray fund, $124,587; theological scholarship fund, $20,721; John G. Gunn ministerial relief fund, $10,000. For the purpose of increasing the missionary funds of the Church, the Convention advised the parishes to consider a plan for taking regular collections, at least once every Sunday, of the proceeds of which, one half should be retained for home use, and the other half equally divided between the State and General Conventions, and recommended the formation of Young People's Missionary Associations in the several parishes. The Woman's Centenary Association returned receipts during the year of $3,471, and disbursements of $3,466. Its permanent fund amounted to $4,115. It supports a mission in Scotland. The Universalist Historical Society returned a library of about 24,000 volumes, besides important manuscripts and papers.

UPHOLSTERY. Tapestries.—The ancient method of adorning mural interiors with silk and silk-and-wool tapestries has as yet been little revived in the United States. Examples, indeed, of the work done by weavers of such tapestries in the several noted "periods" of French and English household art exist in American museums and in private families as heir-looms, but their presence as wall-hangings in dwellings is rare. But modern textile artists have devoutly studied the ingenious interlacings of the silk and woolen threads that framed these massive fabrics; while their subtile color-treatment and the majesty and beauty of their heraldic and sacred designs have inspired the pattern-makers of all progressive lands. Special interest in old tapestries was aroused by the English, Spanish, French, and Flemish exhibits at the Exposition of 1876, many of the examples being of great antiquity. Some still remain among the permanent exhibits. Though not applied now, as in the furnishings of the middle ages, tapestries, by their great adaptability and varieties of texture, surpass all other decorative cloths. Plushes, now so popular, combine rather than compete with them, and the two may be classed as the great staples of the trade. In tapestry-manufacture, even on power-looms, the identical weave and technique of the old hand-workers are marvelously imitated. The "Gobelin stitch" is quite creditably duplicated in American mills, and the low price of our tapestries gives them wide distribution. This is equally true in England, whence come, too, superb specimens in this branch of upholstery. France makes largely, from the finest to the lowest grades; and German weavers are producing creditable tapestries. But in the profusion of rich material used, and in the disregard of time consumed in weaving, the old makers have as yet been neither eclipsed nor even reached.

First American Upholstery.—The first successful weaving in this country of cloths for coverings and draperies is credited to Philadelphia, where, about 1866, Isaac Stead, an Englishman, astonished the upholstery-dealers by producing, on hand-looms of primitive model, certain reps and "Terry" cloths, then much used, and made mainly in England for the American trade. Stead's first product was readily taken by wholesalers, and the near approach of his cloths to standard foreign weavers deceived even expert importers, and set the customs officials of New York and Philadelphia on his track as a smuggler. The venture of this pioneer, though finally disastrous financially, was in every way creditable. The present firm of George Brooks & Son, in Philadelphia, began in upholstery in a small way, about the same time with Stead, and, after many and great discouragements, succeeded in making tapestries fully suited to the American trade. From Isaac Stead, the first weaver, came the present house of Stead & Miller. Philadelphia continues the favorite habitation of the upholstery-weaver, and every year adds to the city's yield of tapestries and curtains. George W. Ennis & Co. deserve special mention for first making in the United States (about three years since) fine, light-weight silk curtains on power-looms.

Laces.—An effort was made recently to start a lace-curtain factory in Pennsylvania, but was abandoned. Our supplies of lace curtains come now from Great Britain (Scotland, mainly), France, Germany, and Switzerland.

Materials.—It was long imagined by housekeepers and by manufacturers that only wool or silk singly, or else the two combined, were fit to enter into curtains and coverings; but jute-fiber has of late years been largely substituted. Its wonderful luster, receptiveness to colors, and pliancy, make it a positive rival to silk, and the jute tapestries and velours that reach us from abroad are freely used in high-class upholstery. The States of Mississippi and Louisiana are experimenting in jute-culture, and the fiber shown from these is superior. Our American wools are used in upholstery cloths, and domestic mohair in small quantities is offered the plush-makers. For the silk chenille curtains and piece-goods now largely in use, and for tapestries, the silk stock used comes from China and Japan, being sold in its various stages as "raw" and "spun" silk, silk "waste," and "noils." Domestic cotton-yarns, as spun by improved machinery, enter largely into tapestries, and are freely combined with silk and wool in expensive goods. Tapestries made wholly of cotton, or relieved by threads of silk or wool, are popular, and are remarkably cheap. The illumination of tapestries and curtains with gold and silver tinsel-yarns is now common, and the effects are pleasing. The spinning of these tinsel-yarns, at present imported, is now contemplated in New York and Philadelphia.

Trimmings.—Fringes, gimps, cords, and tassels for draperies, are made of silk and wool, and several large mills are employed in their production in New York, Philadelphia, and New England. Fringe-works at Chicago have recently begun business. Furniture-gimps, of silk, cotton, and worsted, are made in New York city and Philadelphia, in ample supply.

Mohair Plushes.—The vigilance of French and German weavers of mohair plushes has for a long period kept confined to those countries the methods proper to their production. Their great durability and beauty have secured for them a world-wide demand among upholsterers. So jealous, indeed, have been the plush-weavers, that few even of their own nationality have discovered the art, and in consequence the one town of Amiens, France, has, until recently, defied all competition, and compelled the most remote buyers to come there for plushes. German plushes first approached the French in excellence, but they lacked that subtile and pleasing finish imparted by the French manufacturers. English upholsterymen have repeatedly failed to make at home, even with imported help, a mohair plush that should sell along with that of the French. The explanation of this failure is the familiar one concerning French artisans—that the most skillful of them do not emigrate, and that, when working in the mills of other lands, they do not produce like results; in short, that French goods can only be made in France. This was seemingly verified in the experiment in 1876 of the New York Plush and Braid Company, which attempted plushes with the help of a Frenchman well trained in their weaving. They rapidly lost the capital invested, and made unmarketable goods. Subsequent events, however, have fully exploded all the superstition and glamour that attached to plush-weaving.

Plush-Weaving in America.—The recent death, in the prime of life (in 1885), of John H. Tingue, of Seymour, Conn., lends a melancholy interest to the annals of American plush-makers; for to him and to the Tingue Manufacturing Company, and to Charles Coupland, of their motive department, belong the honor of first introducing American mohair plushes, and of perfecting machinery for weaving them. We do not ignore the numerous and creditable experiments made prior to those of the Tingue company. These (beginning in 1864–'65) were conducted mainly around New York city and in New Jersey, but in each instance, down to that of the New York Plush and Braid Company, the product was found so far below foreign standards that merchants would not handle it. In 1881 the Tingue Company, after long and careful tests, surprised the trade by submitting, for inspection and sale, genuine, merchantable mohair plush woven wholly by original methods at their factory in the Connecticut hills. Upholsterers pronounced favorably on the Tingue plushes, and their rapid distribution over the country followed. The company proceeded to enlarge their plant, and thus it was demonstrated that plush could be made in America. The carpet firm of J. & J. Dobson, of Philadelphia, made experiments in plush-making, which took definite shape about the same time as did those of the Tingue Company, and they rapidly followed with mohair plushes of equal excellence. They were the first in this country to manufacture high-grade silk plushes. To make a mohair plush that would be accepted by railways for the seatings of passenger-coaches has been from the first one of the chief aims of the mills. The first firm to claim entire success in car-plushes was L. C. Chase & Co., of Boston, whose factory in Maine has of late yielded very superior grades, especially in fine plain goods (as distinguished from the popular embossed plushes) not before attempted. This firm claim, also, machinery of their own invention and construction superior to the French, and further, that their plushes stand the "sun-tests" better than the imported. At Providence, R. I., one firm, D. Goff & Son, large makers of cords and braids for upholstery, have recently begun making high-grade mohair plushes. Plushes of ordinary worsted, closely resembling real mohair, are made in Philadelphia and in Passaic, N. J. It is specially significant that American plush-weavers have started mainly with home-made machinery, and that, within the brief existence of the industry, in our inventions in looms, in finishing-machines, and notably in embossing-machines and machines for the final accurate cutting of the pile, we have far surpassed all former inventions.

Window-Shades.—An important and growing branch of upholstery is that of window-shades and shade-cloth, made of ordinary bleached cotton-muslin, which, after passing through various processes of sizing and coloring, is sold in long pieces, or cut up into pairs of various widths and lengths, and decorated. The first seamless, plain oil shadings for wide store-windows were made in Buffalo, N. Y., about the year 1867. In his efforts to perfect a machine for wide shadings, the owner of the factory sunk his fortune, and their subsequent manufacture has been conducted in New York city. Plain window "holland" (a cotton fabric finished somewhat like linen) was long imported from Scotland; but within the past ten years American hollands have supplanted them. The largest window-shade factories are in and around New York city. The two best-equipped factories on plain oil shadings are at Oswego, N. Y.

Threads and Tacks.—In the minor essentials of tacks and threads for upholstery uses American makers leave nothing to be desired. Several extensive upholstery tack-works exist in New England, and a number have been successfully planted in the Western States, notably in Illinois. The Central Manufacturing Company is the title of a huge corporation, which includes in its pool every important tack-factory in the United States, and regulates absolutely the prices of tacks. The best of flax threads are required for upholstery, and extensive works are successfully conducted at Paterson, N. J., New York city, and Schaghticoke, N. Y. Each of these makes threads and flax yarns of all descriptions for upholstery.

Upholstery Hardware. — American shade-fixtures find a destination in every civilized country. In metal upholstery decorations decided progress is apparent. Large factories in New York, New Jersey, and Connecticut turn out all classes of drapery and cabinet hardware. In stair-rods of brass, silver, and wood, American goods are in the highest repute.

Summary.—Except in plushes we do not, as yet, make upholstery textiles the finish and richness of which would commend them for very high-class decorations. But in coverings and in silk draperies of moderate cost, in silk chenille and light-weight silk curtains, and in the items of silk and mohair plushes, real and imitation hair-cloths, upholstery hardware, and metal decorations, upholstery twines, threads, and tacks, the most gratifying progress has been made, and the yield in all of these essentials is abundant and of excellent quality. The seat of the industry is Philadelphia, where the number of plants far exceeds the entire aggregate of those elsewhere. The class of goods made at the several respective points are as follows: Philadelphia, tapestries, curtains, mohair and silk plushes, real and imitation hair-cloth; Paterson, N. J., worsted plushes; New York city and Brooklyn, tapestries and curtains; Seymour, Conn., mohair plushes; Woodbury, Conn., tapestries; Tariffville, Conn., silk tapestries and damasks; South Manchester, Conn., silk plushes; Sandford, Me., mohair plushes; Providence, R. I., mohair plushes, bindings, and picture-cords.

Tariff.—The customs duties on upholstery cloths and sundries are moderately protective, and were reduced somewhat by the Tariff Commission of 1882–'83. The imports of foreign tapestries, plushes, brocades, damasks, and velours, while heavy, are being considerably diminished by the rapid increase of factories. (See HAIR-CLOTH, page 387.)

URUGUAY, a republic in South America. Area, 69,835 square miles; population in 1880, 438,245; in 1882, 505,207. The republic is divided into thirteen departments: Montevideo, Canelones, La Colonia, Soriano, San José, Maldonado, La Florida, Paysandú, Salto, Cerro-Largo, Minas, Durazno, and Tacuarembó. Of the 438,245 inhabitants, according to the census of 1880, 298,023 were Indians and 140,222 foreigners. Of the latter, 39,780 were Spaniards, 36,303 Italians, 20,178 Brazilians, 15,546 Argentines, 14,375 Frenchmen, 2,772 Englishmen, 2,125 Germans, and 9,143 of other nationalities. Montevideo, capital of the country, had in 1879 a population of 73,353.

Immigration.—The number of persons arriving and departing during 1879–'82 was:

YEARS.	Immigration.	Emigration.
1879	30,287	26,781
1880	28,005	24,336
1881	25,628	24,841
1882	31,888	29,692
Total	115,808	105,650
Gain in four years	......	9,658

Irish Settlement.—The Irish informers made a settlement in Uruguay in 1884, close to the Swiss colony on the Rio Negro. The British Government made arrangements with a "ranchero" on the Rio Negro to provide them work. At home they were all members of the Invincible Society.

Government.—The President is Gen. Máximo Santos, who was elected for four years on the resignation of Dr. Vidal, and whose term of office will expire on March 1, 1886. The Cabinet is composed of the following ministers: Foreign Affairs, Dr. Manuel Herrera y Obes; Finance, Dr. J. L. Terra; Interior, Dr. Cárlos de Castro; and War and Navy, Gen. Tajes. The Minister Resident of the United States, accredited July 3, 1882, is Hon. W. Williams, and the American Consul at Montevideo is A. L. Russell. The Uruguayan Consul-General at New York is Mr. H. Estrazulas.

Army.—The standing army comprises three battalions of sharpshooters, five regiments of horse, and two regiments of artillery, together 3,260 men and 234 officers. There is, besides, a police force of 3,200 men, and a National Guard of 20,000 men.

Finances.—The public debt on Jan. 1, 1883, was as follows:

Outstanding, redeemable without interest	$16,970,167
Consolidated debt, originally bearing 12 per cent. interest, but converted into bonds paying 5 per cent. the first three years, and 6 per cent. the following seven years	17,143,281
Two and three per cent. bonds having ten years to run	27,465,756
Total	$61,579,204

A bill was passed on May 12, 1883, unifying the internal and external debts, and by virtue of this law a 5 per cent. loan to the amount of $52,296,900 was contracted with London bankers, interest dating from Jan. 1, 1884. Toward the extinguishment of this debt a sinking fund was simultaneously created, which provides for the setting aside of one half of 1 per cent. annually for that purpose.

The revenue for the year 1879 was $8,252,087. The expenditures were $8,252,087. In 1881 the revenue was $7,890,000, and the expenditure $7,857,275. For 1882 the budget estimate of outlay was $8,300,000.

In December, 1884, the duties collected at Montevideo amounted to $541,943.

On December 31 the Credit Bureau paid the French legation $50,000, the second installment of the sinking fund, to extinguish the French debt; and on Jan. 5, 1885, the twenty-second sinking-fund payment on the Italian debt was made, as well as that of the Higueritas Railroad bonds falling due. In spite of the promptness with which the Government was meeting all demands on the treasury, the market value of Uruguayan bonds in January, 1885, at Montevideo, was a fraction above 50.

Communications. Railroads.—There are in operation: 1. The Central Railway of Uruguay; Montevideo-Durazno line, 210 kilometres; the section from Juan Chaso to the city of San José, 32 kilometres; and the line between Juan Chaso and Higueritas. 2. The Upper Uruguay Railway, from Salto Oriental to Santa Rosa, 154 kilometres, and the line from Montevideo to Pando, 39 kilometres.

Telegraphs.—There were in operation, in 1882, 1,062 kilometres, including a submarine cable of 160 kilometres. The offices numbered 19, the employés 64; 26,609 domestic messages were sent in the year, and 19,918 abroad, besides 7,030 in transit; together 53,557, against 39,536 the previous year.

Postal Service.—There are in the republic 234 post-offices. The items of mail-matter dispatched were as follow:

ITEMS.	1880.	1881.	1882.
Private letters	938,402	1,222,226	1,353,365
Registered letters	15,020	34,248	36,746
Government letters	63,110	62,184	66,730
Postal-cards	11,767	15,541	15,128
Newspapers	1,216,398	1,703,160	2,094,711
Samples	2,489	3,073	4,219
Total	2,247,186	3,040,432	3,570,899
Money orders	$12,000	$14,986	$14,067
Revenue	115,931	118,624	127,601

The Pampas.—A traveler who made a trip through the pampas of the republic in 1884 reports as follows:

> The peculiar characteristics of these vast level plains, which descend from the Andes to the great river-basin in unbroken monotony, are the absence of rivers or water storage, and the periodical occurrence of droughts. These conditions determine the singular character both of its flora and fauna. The soil is naturally fertile and favorable for the growth of trees, and they grow luxuriantly wherever they are protected. The eucalyptus is covering large tracts wherever it is inclosed, and willows, poplars, and the fig surround every *estancia* when fenced in. The open plains are covered with droves of horses and cattle, and overrun by numberless wild rodents, the original tenants of the pampas. During the long periods of drought which are so great a scourge to the country, these animals are starved by thousands, destroying in their efforts to live every vestige of vegetation. At the time of my visit, 50,000 head of oxen and sheep and horses perished from starvation and thirst, after tearing deep out of the soil every trace of vegetation, including the wiry roots of the pampas-grass. Large tracts are still honeycombed by the ubiquitous biscacho, a gigantic rabbit, and numerous other rodents still exist, including rats and mice, pampas hares, and the great nutria and carpincho on the river-banks. That the dearth of plants is due to the unsuitability of the sub-tropical species of the neighboring zones does not hold good with respect to the fertile valleys of the Andes beyond Mendoza, where a magnificent hardy flora is found.

Agates.—The famous agate-quarries of Oberstein, Germany, were abandoned owing to the discovery, fully half a century ago, of a rich supply of those stones in the river-gravels of Uruguay. Some German workers in agate, who had emigrated to that region, noticed the court-yard of a farm-house paved with pebbles that reminded them of the agates of their native Oberstein. Specimens were accordingly sent home and cut, and the surmise proved to be correct. Since that time there has been a regular export of agate nodules from Uruguay to Oberstein. These "Brazilian agates" are arranged in lots and are generally sold by auction—stones of ordinary quality usually bringing not more than four dollars a hundred-weight.

Farming.—Mr. C. P. Schultze, in January, 1885, read a paper before the German Colonial Union, at Bremen, Germany, about colonization in Uruguay, from which we translate the following: Cattle-raising and sheep-breeding will prove in the long run in southern Brazil and the northern La Plata states more profitable for the colonist than agriculture. As for wheat-growing, for example, it has been carried on energetically in some provinces for several years, but in view of over-production elsewhere, and the great decline in prices, it lacks a future. Even now flax has, to a great extent, taken its place, but even this product does not promise well. Other similar products are not adapted for cultivation, the rainy season being too short, the drought prevailing, especially in the southern and western portions, being such that while proceeding in that direction you first traverse woodlands, then isolated woods, grazing-grounds, steppes, and finally deserts are reached. Another drawback is the grasshoppers. Between 1857 and 1874 this scourge seldom made its appearance, since then they have afflicted the country in immense clouds. The raising of potatoes, Indian corn, and other cereals is precarious. Stock-farming enjoys many advantages, especially the mild winters and the three crops that lucern produces, affording an excellent fodder which even the grasshoppers can not quite obliterate. Jerked beef is put up for the Brazilian, Cuban, and even Mediterranean trade. It commands on the spot $5 to $6 for 46 kilogrammes, and a net profit of $11 to $12 is cleared from every head of cattle in the shape of beef, the hide, tallow, etc. The meat is so cheap that it is profitably used for the manufacture of beef-extract and meat-powder, the so-called "carne pura." Mutton in refrigerator steamers, fitted up for the purpose, is also being profitably exported to England and France. There is now an export demand for horses from Uruguay for the French and Belgian markets.

Wool.—The ensuing tabular statement shows the wool production in Australia, at the Cape of Good Hope, and in La Plata, reduced to millions of pounds of scoured wool:

COUNTRIES.	1884.	1883.	1882.	1881.
Australia	224½	198¾	197½	179
The Cape	89½	89½	89¼	40
La Plata	102½	96½	98¾	88¼
Total	866¼	884¼	829¼	802¼

Commerce.—The foreign trade movement of Uruguay, from 1880 to 1883, was as follows:

YEARS.	Imports.	Exports.
1880	$19,500,000	$19,700,000
1881	17,900,000	20,200,000
1882	18,200,000	22,100,000
1883	20,300,000	25,200,000

American Trade.—The imports into the United States from Uruguay, and our exports to that country, for five years, are shown in the following table:

YEARS.	IMPORTS.				EXPORTS.
	Hides and skins.	Wool, raw.		Total imports.	
	Dollars.	Pounds.	Dollars.	Dollars.	Dollars.
1880	3,575,785	9,577,809	1,783,001	5,542,035	880,871
1881	2,960,259	4,828,562	852,609	4,164,668	1,536,326
1882	5,083,253	6,894,885	1,221,800	6,337,786	1,457,978
1883	2,716,240	5,920,718	868,408	3,980,110	1,385,755
1884	1,615,205	2,539,801	834,140	2,128,981	1,289,923

UTAH. Territorial Government.—The following were the Territorial officers during the year: Governor, Eli H. Murray; Secretary, Arthur L. Thomas; Auditor, Nephi W. Clayton; Treasurer, James Jack; Superintendent of Public Instruction, L. J. Nuttall. Supreme Court: Chief-Justice, John A. Hunter, succeeded by Charles S. Zane; Associate Justices, Philip F. Emerson and Stephen P. Twiss.

Legislative Session.—The commissioners appointed under the act of Congress of March 22, 1882, report, under date of April 29, 1884, that the Territorial Legislature met on January 14 and adjourned on March 14 "without accomplishing such legislation as is contemplated by said act of Congress." The members of this body were all Mormons, but none of them disqualified under the act of Congress (not being in polygamy). No act was passed concerning the marriage relation. A bill relating to registration and elections, and declaring the qualification of voters and office-holders, was passed in both houses, but failed to receive the approval of the Governor. By congressional law the Governor is a part of the legislative authority in Utah, and no law can take effect without his approval. In the opinion of the Governor, as set forth in his veto message, the bill was an evasion of the law of Congress, and did not come up to the requirements of the country in regard to polygamy.

Operation of the Edmunds Law.—The commissioners in their April report say:

> Thus far the legislation of Congress has been directed against the crime of polygamy and "unlawful cohabitation," a full exposition of which was submitted in our last report. The present law provides for the punishment of polygamy and unlawful cohabitation by fine and imprisonment upon conviction in the courts of justice, and also for the disfranchisement of polygamists. Prior to the time when this board took charge of the conduct of registrations and elections in Utah, in August, 1882, nearly all the principal offices in the Territory were held by polygamists. The Legislative Assembly of 1882 (consisting of thirty-six members) were all in polygamy with the exception of two or three. Other offices, such as delegate to Congress, and Territorial, county, and municipal offices, were filled by polygamists in about the same proportion. The doctrine of "rotation in office" was almost unknown in Utah, and many of the polygamists had been kept in the same offices from youth to old age. All this is changed under this act. Since this commission entered upon its duties there have been elected in the Territory 1,351 officers, not one of whom is a polygamist. In this number are included 390 municipal officers. We have estimated the number of voters (male and female) who have been disfranchised by reason of polygamy at 12,000, and there is not now a polygamist in office in Utah. That the leading polygamists among the Mormons feel the effects of the Edmunds act as a heavy blow against their dominating influence has been proved to our satisfaction in many ways. Whether the actual practice of polygamy is on the decrease or not is a disputed question. We are of the opinion that in the more rural districts, chiefly in the southern part of the Territory, there has not been much decrease, while in Salt Lake county, and other counties where there are considerable cities and towns, there has been a decided decrease.

It is said that the large influx of non-Mormons since the completion of the transcontinental railroad in 1869, and especially since the development of mining in Utah, has wrought many changes for the better. It is not expected that legislation will effect any immediate change in the religious belief of the people, but it is claimed that, in conjunction with other influences, it will "place the obnoxious features of Mormonism in a condition of gradual declension and final extinction." In a later report (Nov. 18, 1884), the commissioners express their views as follows:

> After more than two years' labor and experiences here, it becomes our duty to advise the Government and the country that, although the law has been successfully administered in respect of the disfranchisement of polygamists, the effect of the same upon the preaching and practice of polygamy has not been to improve the tone of the former or materially diminish the latter. For a year or more after the effort to enforce the law was initiated, polygamic teachings from the pulpit were rarely heard, and there were indications that the practice of polygamy might be expected to at least measurably decline; but during the present year there appears to have been a polygamic revival. The institution is boldly, defiantly defended and commended by the spiritual teachers, and plural marriages are reported to have increased in number. This reported increase in plural marriages seems to be coincident with the completion of the Mormon temple at Logan, the most prominent and influential city in the northern section of the Territory. The dedication of this temple was attended with great pomp and ceremony. A large concourse of people assembled there, Mormon fanaticism was blown into a flame, and polygamic marriages received an additional impetus; and although we have no official data upon which to base a statement—because the record of Mormon marriages, if there is one in this Territory, is a sealed book to all the world—it is undoubtedly true that an unusual number of plural marriages followed this event. There are four Mormon temples in Utah —at Salt Lake City, Manti, Logan City, and Saint

George—only the last two being finished. Three fourths or more of the Mormon adults, male and female, have never entered into the polygamic relation, yet every orthodox Mormon believes in polygamy as a divine revelation. There is, however, in Utah and several of the States a sect styling themselves the "Reorganized Church of Jesus Christ of Latter-Day Saints," commonly called Josephites, who discard polygamy as a spurious revelation, but who give full faith and credit to all the other so-called revelations given to the "Prophet Joseph." These "Josephites" are comparatively few in Utah.

Polygamy Cases.—Several indictments for polygamy were tried during the year. In the case of the United States *vs.* Rudger Clawson, the charge in the indictment was, that on Aug. 1, 1882, the defendant married Florence Ann Dinwoodey, with whom he is still living as his wife, from whom he has not been divorced, and that on June 1, 1883, he married Lydia Spencer. The second count charged unlawful cohabitation under the "Edmunds act." Of this trial the commissioners say:

> The jury had been selected under an act of Congress applicable only to Utah, which would ordinarily result in the empaneling of a jury approximately composed of half Mormons and half Gentiles, provided there were no challenges. But in this case, in pursuance of a provision of the "Edmunds act," each juror was asked, "Do you believe it right for a man to have more than one living and undivorced wife at the same time?" Each and every Mormon in the box—a few with hesitation, but nearly all with promptness—answered, "Yes, sir." All such were successfully challenged for cause. The list of jurors drawn under the act of Congress for the year 1884 having been exhausted by these challenges, and there being fewer than twelve remaining, an open venire was issued; so the panel was completed, consisting of twelve—all being non-Mormons. A protracted trial ensued, resulting in a disagreement of the jury. A new trial was begun on the succeeding day, at which the attendance of the second wife as a witness was secured. This trial resulted in a verdict of guilty on both counts of the indictment. The sentence was a fine of $800 and four years' imprisonment in the penitentiary. The trial of this case has caused a profound sensation throughout this Territory. The defendant and his two wives, together with many of the witnesses, belong to the better class of Mormon society. He is the son of a bishop. Among all the witnesses examined —and there were many, including the immediate relatives of the parties, the president, and other high officers of the church—every one except the last witness, the second wife, disclaimed all knowledge of the marriage.

Following this trial there was another conviction for polygamy in the case of Joseph H. Evans, on the evidence of his second wife. He was sentenced to a fine of $250, and imprisonment in the penitentiary for three and a half years. In another case, that of John Connelly, there was an acquittal upon evidence tending to show that the prosecution was barred by the statute of limitations.

The case of Clawson was taken for review to the Supreme Court of the Territory, where the conviction was sustained; and thence to the Supreme Court of the United States, which in 1885 affirmed the decision of the Territorial Court, holding that the constitution of the juries under the "Edmunds act" was legal.

Recommendations by Commission.—Among the recommendations by the commission for congressional action are the following: A law giving the first (or legal) wife the right of dower as at common law; that the number of elective officers in the Territory be reduced, and the number of officers appointable by the Governor be correspondingly increased; that the confirmatory power be taken from the council and given to the commission; that the provisions of the law of 1874, relative to juries and the mode of selection, be revised either by providing for a greater number of jurors, or by authorizing an open venire when the names in the box have been exhausted. The commissioners regard it as "not unlikely that finally the Federal Government will find it necessary to take into its own hands all civil power in this Territory."

Denominational Churches and Schools.—On this subject the commissioners say: Honorable mention is due to the many Christian denominations that have established colleges, schools, and churches in Salt Lake City and many other parts of the Territory. Among these are churches or schools maintained by the Presbyterians, Methodists, Congregationalists, Episcopalians, Baptists, Catholics, and perhaps others, all or nearly all of which has been accomplished within the last fifteen years. One or more of these churches and schools may be found in nearly all the principal cities and towns of the Territory, and are chiefly supported by the benevolence of the people and the churches of the States. The denominational schools now number 79, with an average daily attendance of nearly 6,000 pupils, many of whom are the children of Mormons.

Mining.—The value of the bullion product of the Territory in 1884 has been stated at $8,889,836. Another statement is as follows:

4,840,937 pounds refined lead	$169,484 54
6,028,898 pounds unrefined lead	980,418 12
5,669,438 ounces fine silver	6,123,047 04
5.580 ounces fine gold	110,600 00
68,872 pounds copper	6,337 20
Total export value	$7,389,886 90

Computing the gold and silver at its mint valuation, and other metals at their value at the seaboard, would increase the value of the product to $9,201,508.

Elections.—The general election for county and precinct officers was held on August 4. The election for delegate to Congress occurred on November 4. Both elections were preceded by revisions of registration under direction of the commissioners, by which it is believed all polygamists were excluded from the privilege of voting. A few non-Mormons were chosen precinct officers; the other officers elected in August were Mormons not living in polygamy. Of 40,743 persons registered, only 20,458 voted at the August election. In November, of 41,858 registered, 23,361 votes were cast. Of these, the Mormon candidate, John T. Caine, received 21,180; Ransford Smith, Gentile, 2,215; and 26 were scattering. Mr. Caine has never practiced polygamy.

V

VENEZUELA, a republic in South America. It is divided into eight States, one Federal District, eight Federal Territories, and two national colonies. The area is 1,639,398 square kilometres, and the population 2,121,988. The agricultural zone covers 349,488 square kilometres; pasturages, 400,000; forests, 889,910. The number of foreigners settled in the country in 1881 was 34.916, of whom 11,544 were Spaniards; 4,041 British subjects, mostly from the adjacent island of Trinidad; 3,237 Italians; 3,206 Dutch subjects, from the neighboring island of Curaçoa; 2,186 Frenchmen; 1,171 Germans; 204 Danish subjects from St. Thomas; 3,729 Colombians; only 179 Americans; and 419 of other nationalities.

The Federal capital is Carácas, at the foot of Mount Avila, which rises 2,682 metres above the sea. Its population in 1883 was 70,509. The cities next in importance are: Valencia, 36,145 inhabitants; Maracaybo, 31,921; Barquesimeto, 28,918; La Guayra, 14,000; Puerto Cabello, 10,145; Ciudad Bolivar, 10,801; Mérida, 10,747; Maturin, 14,743; Cumaná, 12,057; Carúpano, 12,389; Barcelona, 11,424; La Victoria, 12,000; Villa de Cura, 11,614; Tocuyo, 15,383; and San Cárlos, 10,741.

Education.—Elementary instruction has been compulsory and gratuitous since 1870. In 1873 the number of Federal free schools was 141, with 7,064 pupils, and there were besides 401 city and private educational establishments. Ten years later there were 1,232 Federal free schools, 75,275 pupils attending them, besides 546 city and private schools with 17,386 pupils, and 8 barrack-schools where 1,900 soldiers were taught, making an aggregate number of educational establishments in 1884 of 1,786, attended by 94,561 pupils. In 1831 there were but 200 such establishments, with 7,500 pupils; in 1840, 212 with 8,075; in 1847, 480 with 12,815; and in 1871, 300 with 10,000. The expenditure by the Federal Government in 1884, for 1,240 free schools, attended by altogether 77,175 pupils, was 2,122,965 bolivars or francs.

In universities and Federal colleges, 2,528 boys are being instructed; in private institutions of the kind, 699; in national colleges for girls, 432; and in male and female normal schools, 108. There is a Naval School, and one of Telegraphy; and a Polytechnic Institute, as well as a School of Arts and Trades, have just been founded.

Libraries and Museums.—In 1874 all public libraries and collections, including those unearthed from convents, were united at the library of the Carácas University, which now numbers 30,000 volumes, besides the public documents. The National Museum is contiguous to the library. Another collection is being formed at the Palace of the Centennial, called the "Bolivar Library." New libraries are being founded at all the capitals of the eight States of the Confederacy. There are published in the republic 120 periodicals.

Government.—The President is Gen. Joaquin Crespo, whose term of office will expire on Feb. 20, 1886. The Cabinet is composed of the following ministers: Foreign Affairs, Señor Benjamin Quenza; Public Credit, Señor J. A. Valentini; Public Works, Señor Abelardo Arismendi; Finance, Señor Rivas Castillo; Interior, Gen. V. Amengual; and Public Instruction, Señor M. F. Pimentel. President of the Supreme Court of the Confederacy, Señor A. A. Silva; and Governor of the Federal District, Gen. Bernardino Mirabal.

The Minister Resident of the United States at Carácas is the Hon. Jehu Baker, and the American Consul at La Guayra is Scott Bird. The Minister from Venezuela to the United States is Señor A. M. Soteldo. The Venezuelan Consul-General at New York is J. G. Call.

Finances.—There are two species of home debt: the consolidated, bearing 5 per cent. interest; and the convertible, not paying interest. The former amounted, on June 30, 1883, to 36,167,297 francs, and the coupons are paid with scrupulous punctuality. At the time the new era of radical reforms obtained ascendency, the nation owed abroad 276,000,000 francs; but the new *régime*, by dint of economy and clever management, succeeded in reducing the foreign debt to the trifling amount (considering the resources of the country) of 68,040,400 francs, the 3 per cent. interest being regularly paid quarterly in London. Venezuelan bonds are now looked upon with favor by foreign capitalists, and they are scarce.

The budget for 1882–'83 made the following estimates of income and outlay:

REVENUE.	Francs.
Duty on imports	19,581,822
Transit dues on goods	5,414,601
Stamp-tax	1,394,212
Salt-tax	1,007,591
Income of universities and colleges	564,128
Income derived from Yaracuy Territory	468,814
Income derived from Caura Territory	106,262
Interests earned by the state	187,200
Telegraph dues collected	152,071
Minor items of revenue	161,821
Total	28,987,522

EXPENDITURE.	Francs.
Legislative and executive	1,085,246
Interior	2.625,006
Public Instruction	2,500.622
Public Works	4,549,111
Treasury	3,040,796
Public debt	4,253,820
War and Navy	2,425,588
Foreign Affairs	1,284,075
Justice	191,620
Contributions for States	3,828,966
Sundries	916,571
Total	26,650,371

The actual expenditure, however, proved not to exceed 25,024,476 francs, while the revenue collected reached 28,987,522. Aside from the Federal revenue, the Carácas city dues, and taxes in individual States collected in 1888, summed up 18,500,000 francs.

Army and Navy.—The regular army has a strength of 2,545 men, consisting of eight battalions of foot, one company of horse, and one of artillery, with 240 officers. In times of war the militia is enrolled. The navy is restricted to two small steamers and two schooners, mounting together eight guns.

Public Works.—During the six years from 1879 to 1884, the public exchequer handed over to the Minister of Public Works 59,030,086 francs, which were spent as follows: First three years, 33,137,156 francs; second three years, 25,892,930 francs. For buildings, bridges, embellishments, statues, streets, and surveys, 13,585,383 francs; and for railroads, high-roads, telegraphs, hydraulic works, canals, irrigation, drainage, and mines, 12,307,547 francs.

Wages. — Common laborers are paid one hundred to one hundred and forty francs a month, if they find themselves; or fifty to eighty francs if they receive board and lodging; skilled laborers earn from one hundred and twenty francs monthly, upward, and found; ox-cart drivers, having their own teams, earn from eight to ten francs a day, but only four if they have to be furnished with a team; common day-laborers receive, without board and lodging, four to five francs daily; domestic servants receive eighty to one hundred francs a month; carpenters, blacksmiths, tanners, saddlers, journeymen rope-makers, masons, common mechanics, and coachmen, earn from six to ten francs a day; compositors, printers, and bookbinders are paid, without board and lodging, 5 to 12 francs a day.

Colonial Produce.—In 1873 there were under cultivation with colonial produce altogether 279,407 hectares; in 1875 there were 296,999 thus exploited; and in 1883 341,199, of which 138,900 were devoted to coffee-culture, 24,596 to that of cocoa, 39,300 to sugar-cane, 6,300 to tobacco, 2,000 to cotton, 650 to indigo, 11,300 to manioc, 27,500 to Indian corn, and 39,260 to other cereals, 37,353 to bananas, 1,660 to fruits and vegetables, 4,530 to wheat, and 850 were bearing cocoanut-trees. The increase in ten years was consequently 61,792 hectares, or about 22 per cent.

Stock-Farming.—There were in 1873 within the limits of the confederacy 1,389,802 head of cattle, 1,128,273 goats and sheep, 93,800 horses, 47,200 mules, 281,000 asses, and 362,597 swine. In 1876 these had increased respectively to 2,158,267, 2,309,418, 192,815, 156,020, 519,820, and 669,112; in 1883 to 2,926,733, 3,490,565, 291,603, 247,703, 658,764, and 976,500.

Dairy products and lard amounted in 1883 to 27,036,579 francs.

Mining.—Venezuela abounds in minerals, such as gold, copper, silver, coal, iron, sulphur, lead, tin, petroleum, porcelain-clay, and asphaltum. The province of Guayana is a veritable El Dorado; the Aroa copper-mines are also very productive, while Táchira has its petroleum-wells, and in the neighborhood of Carápano silver and argentiferous lead are mined. There are being worked in Guayana fourteen gold-mines, the richest being El Callao. The latter crushed in 1882 22,405 tons of quartz, and secured 105,896 ounces of gold, worth 10,150,585 francs. The Bolivar copper-mines of Aroa, commonly called New Quebrada, are worked by Englishmen with English capital, but find it difficult to make money at the present low copper prices. A railway connects the mines with Tucacas, and there is an iron steamer running semi-weekly between Tucacas and Puerto Cabello. The ore-shipments of the New Quebrada Mining Company were 10,500 tons in 1880, worth 2,300,000 francs; 17,200 in 1881, worth 3,800,000 francs; 17,500 in 1882, worth 4,000,000 francs; and 30,000 in 1883, worth 6,037,951 francs; together, 75,200 tons in four years, representing a value of 16,137,951 francs.

Fisheries and the Chase.—The product in 1883 was: Turtles and fish 45,220,878 kilogrammes, worth 22,577,981 francs; shell-fish and sponges 1,465 kilos, worth 8,668 francs; game 25,958,840 kilos, worth 22,979,420 francs; and isinglass, 12,274 kilos, worth 47,909 francs; together, 45,613,978 francs.

Sericulture. — Successful experiments were made on the hacienda La Cuadra, by Señor Radelli, in silk-worm breeding, and, as the climate on the plateaus of Venezuela seems to be eminently adapted for sericulture. a gentleman familiar with the subject of silk-production, Mr. A. Ernst, was requested by the Government to write a series of essays on the growing of silk. These essays were published, dating from June 19, 1884, in the Carácas "La Nacion" newspaper.

Railroads.—In 1884 there were in operation 164 kilometres of railway, as follow: From La Guayra to Carácas, 38; from Tucacas to the New Quebrada copper-mines aforenamed, 90; from La Ceyba to Mendoza, 21; from Carácas into the valley of Carácas, 6; and from Maiquetia to Macuto, 10. There were then in course of construction 484 kilometres, and 380 projected and actually under contract. There were being built from Puerto Cabello to Valencia, 54; from Carácas to Santa Lucia, 60; the unfinished track between La Ceyba and Mendoza, 20; from Carácas to Antimano, 10; from Santa Cruz to La Tria, 90; and from the Orinoco to the Yuruari mines, 200. Under contract, to be built without delay, there were from Carácas to Los Teques, 30 kilometres; from there to Guatire, 45; and to the Colonia de Guzman Blanco, 105; from Coro to La Vela, 12; from Cojoro to Maracaybo, 155; and a line of 13 kilometres for the purpose of avoiding the Orinoco rapids.

Telegraphs.—There were in operation in 1883 about 1,832 kilometres of telegraph lines. A cable connects the Venezuelan system with that of Colombia, the latter, at Buenaventura, joining the world's system. In 1883 there were sent 34,290 Government and 135,281 private messages, the latter producing 158,482 francs. On Jan. 4, 1884, the Government of Venezuela made a contract with Mr. L. Rohl, which grants him permission to establish cable communication between the republic and the United States. The contract was signed for twenty years, upon condition that the first cable must be in operation by Jan. 4, 1886.

Telephones.—The telephone service at Carácas has 250 regular subscribers, and thence La Guayra can be spoken to. The Intercontinental Telephone Company has secured the privilege of providing several cities with telephones.

Postal Service.—There are subordinate to the general post-office at the capital 19 chief post-offices in the States and Territories, and 140 minor offices. The items of domestic mail-matter summed up in 1883 altogether 2,678,403, at a total cost of 805,608 francs, out of which the Postal Union received 28,458 francs.

Foreign Steamship Lines.—Eight lines of ocean-steamships are established between Venezuelan ports and the United States and Europe, two of which navigate under the French flag, two under the British, one is German, two are Spanish, and one is American.

Commerce.—The imports and exports in 1878 and 1883 were as follow:

YEARS.	Imports.	Exports.
	Francs.	Francs.
1878	45.459,907	62,204,380
1883	86,265,666	98,601,133
Increase	40,805,759	36,396,753

American Trade.—The imports into the United States from Venezuela, and exports thence, for five years, were as follow:

YEARS.	IMPORTS.		EXPORTS.	
	Coffee.		Total imports.	Total exports.
	Pounds.			
1880	35,5:8,910	$4,956,068	$6,089,692	$2,268.705
1881	42,245,176	5,166,316	6,601,817	2,704,063
1882	43,369,170	4,599,023	5,746,300	2,187.100
1883	47,742,466	4,498,207	5,901,724	2,363,211
1884	53,863,495	5,125,144	6,674,041	2,338,948

VERMONT. State Government.—The following were the State officers during the year: Governor, John L. Barstow, succeeded by Samuel E. Pingree, Republicans; Lieutenant-Governor, Samuel E. Pingree, succeeded by Ebenezer J. Ormsbee; Secretary of State, George Nichols, succeeded by Charles W. Porter; Treasurer, William H. Dubois; Auditor, E. H. Powell; Inspector of Finance, Charles Dewey, succeeded by Carroll S. Page; Railroad Commissioner, Wayne Bailey; Commissioner of Taxes, W. P. Dillingham; Superintendent of Education, Justus Dartt. Supreme Court: Chief Judge, Homer E. Royce; Assistant Judges, Timothy P. Redfield (succeeded by William H. Walker), Jonathan Ross, H. Henry Powers, Wheelock G. Veazey, Russell S. Taft, and John W. Rowell.

Legislative Session.—The Legislature met on the 1st of October and adjourned on the 26th of November. On the 14th of October Justin S. Morrill, Republican, was re-elected United States Senator. There were passed 137 acts of a public character, besides special acts. Of the work of the session a local reviewer says:

> Several progressive and beneficent measures, moral and material, of far-reaching consequence to the State, were proposed. Most of them have been either killed outright or their strength and vigor destroyed. Many measures of trivial importance, or of limited application, or of local and selfish interest, have prevailed. No measure of a distinctive general character, intimately affecting the public weal, has been passed which will, like the act of 1880 to equalize taxation, or of 1882 to provide a revenue for State expenses, serve to commemorate the deeds of the General Assembly of 1884. Some of its more conspicuous acts are that relating to the property-rights of married women, a measure considerably changed by amendments in the House from the form in which it originally passed the Senate; the act, after more than a decade of persistent refusal, to provide the means of preserving the State Library; the act placing trust companies on the same basis with savings-banks as to the limitations and restrictions placed upon their management; the act for the efficient protection of the fish in Lake Champlain; and the highway bill. The Legislature has appropriated money with a prodigal hand. A local-option liquor-license bill, and a bill conferring on women, under certain circumstances, the right to vote at town elections, were defeated in the House.

Financial.—At the close of the fiscal year, Aug. 1, 1884, the State liabilities were as follow:

Due towns, surplus fund	$13 392 62
Due soldiers, unpaid balance	8,808 60
Due suspense account (outstanding checks)	1,940 24
Due Agricultural College fund	135,500 00
Due temporary loan of 1882	50,310 37
Total	$209,951 83

And the assets were as follow:

Cash on hand and in bank	$18,149 46
Balance of corporation tax (unpaid) payable in August	75,000 00
Total	$93,149 46

Only the loan of 1882 is subject to be paid presently, $50,310.37, showing an excess of available assets over liabilities of $42,839.09.

All the corporations and persons reached by the corporation tax law, with a single exception, made the returns required by the law, and taxes were assessed during the calendar year 1883 as follow:

Express companies	$1,378 71
Telegraph companies	597 60
Telephone companies	504 58
Steamboat, Car, and Transportation Company	7,918 26
Railroads	85,516 96
Savings-banks	52,771 76
Trust companies	30,507 67
Home insurance companies	6,768 85
Foreign insurance companies	13,355 69
Making a total for the year	$199,337 07

All which was paid into the treasury except $2,658.56, making the amount received by the Treasurer $196,678.51. Of this amount the sum of $56,506.70 was paid under protest.

Relative to the "Huntington fund," Governor Pingree says:

> Also there stands another important trust in the hands of the State not heretofore among these high,

important, and perpetual responsibilities. I refer to the "Huntington fund," which the Treasurer, in pursuance of a joint resolution of the General Assembly of 1882, authorizing him to collect and receive of the executor of the last will of Arunah Huntington, late of Brantford, P. Q., "all the property to which the State was entitled under said will, and deposit the same in the State treasury," has deposited the net amount so received, to wit, $205,111.22, in the treasury in the month of April, A. D. 1883. This is for the common schools.

The current State expenses for the last two years were $648,494, or over $70,000 less than for the term ending in 1882. The Treasurer's report shows a deficiency of $32,171, which amount was borrowed from the Huntington fund. For many years previous to 1883 large balances were in the hands of the Treasurer and were the direct incentive to extravagance and loose practices in administration. The following is the list of taxable property for 1883 and former years: 1880, real estate, $71,114,747; personal property, $15,037,262; total, $86,152,009. 1881, real estate, $102,437,102; personal property, $46,896,967; total, $149,334,069. 1882, real estate, $106,577,559; personal property, $46,996,025; total, $153,573,584. 1883, real estate, $104,549,674; personal property, $49,586,310; total, $154,135,984. Offsets on personal property for debts were, in 1882, $32,000,000.

Schools.—We give below school statistics of the State for the year ending March 31, 1884:

Number of districts	2,290
Public schools	2,550
Average number of days of school in the year	127
Number of pupils enrolled	73,283
Number between five and twenty years of age	72,744
Average daily attendance	47,607
Number of male teachers	540
Number of female teachers	3,723
Average wages per week for male teachers	$8 58
Average wages per week for female teachers	5 01
Total revenue for school purposes	$562,346 83

Comparing the above with the report for the year ending March 31, 1883, it is found that the number of school districts has decreased forty, the number of schools has decreased three, the number of days of school has decreased four, the number of pupils enrolled has increased 589.

Savings-Banks and Trust Companies.—There are twenty-four savings-banks, savings-institutions, and trust companies in active business in the State, with 45,837 depositors, holding deposits aggregating $13,724,291.53, of which amount $11,327,100.78 belong to resident depositors and $2,394,218.75 to non-residents; the average amount deposited by each being $299.35, or about one third less than the year previous. There are but 272 depositors having to their credit over $2,000 each, and about one half of these deposits were in the seven trust companies, that are not restricted by law in the amounts receivable from any one person, while the savings-institutions are prohibited from receiving in excess of that amount except from widows, orphans, executors, etc.

Insane Asylum.—The number of wards of the State confined in this institution remains substantially unchanged—the number Aug. 1, 1882, being 441; and Aug. 1, 1884, 437. During that period 189 patients were admitted to the institution, and 190 were discharged.

Penal Institutions and Reform School.—The three institutions have a capacity for accommodating 426 persons, while the number of inmates in each, on Aug. 1, was as follows:

INSTITUTIONS.	1878.	1880.	1882.	1884.
State Prison	176	142	90	89
House of Correction	...	70	45	61
Reform School	145	122	86	84
Totals	321	334	221	234

For the past two years the expenses of the State Prison exceeded the income by $17,461. The House of Correction cost the State about $5,000 for the two years. During that time it received 327 prisoners. The Reform School cost the State $22,589.

Railroads.—Vermont has 1,055 miles of railroad, which cost $41,028,915. The roads have a capital of $22,458,300 and a funded debt of $19,230,900. During the two years ended July 31, 1884, 28 persons were killed by the cars, all employés of the roads; 69 persons were injured, of whom three were passengers.

Forestry.—From replies to a circular, the Forestry Commission find—1. That from 80 to 90 per cent. of the native forests have been cleared off in the longer settled and better agricultural portions of the State in some localities; remote from railways virgin forests are still found. 2. The annual clearing is now comparatively small, except in the vicinity of newly constructed railways. The annual diminution of forest acreage is smaller and growing less, and, in some sections, especially in the southern and southeastern, the forest area is increasing from old pastures and abandoned lands. The new growth is less valuable than the original. 3. There is no systematic effort to reclothe abandoned and worn-out lands with a forest-growth. 4. About twenty-five cords to the acre is cut after a growth of twenty years, increasing about one and one half cords a year in the next ten years. 5. The use of coal is rapidly increasing and reducing the consumption of wood. 6. The replies indicate less damage from forest-fires than was expected; it is, however, considerable in the aggregate, and the injury seems to be greatest to the second growth, and in places where the mill-timber has been cut, and brush and tree-tops left to feed the forest-fires. 7. No disease now affecting the spruce is reported. Injury to maple, tamarack, and some other trees from borers, caterpillars, and insects is reported, but the damage seems not to be great or general. 8. The answers to the questions in regard to the effect of the removal of the forests upon the springs, streams, and ponds of the State, with scarcely an exception, tell the same story: that the water-supply is year by year failing; and that the smaller springs and streams, which had never until recently been known to fail, often become totally dry in a dry season.

Political.—The following were the Republican nominations: For Governor, Samuel E. Pingree; Lieutenant-Governer, Ebenezer J. Ormsbee; Secretary of State, Charles W. Porter; Treasurer, William H. Dubois; Auditor, E. H. Powell; Members of Congress: First District, John W. Stewart; Second, William W. Grout. The following were the Democratic nominations: Governor, Lyman W. Reddington; Lieutenant-Governor, Nathan P. Bowman; Treasurer, Henry Gillett; Secretary of State, Herbert F. Brigham; Auditor, Carlos S. Noyes; Congress, First District, George H. Simmons; Second District, Martin H. Goddard. At the election on the 2d of September, the Republican State and congressional candidates were chosen. The vote for Governor was: Republican, 42,524; Democratic, 19,820; other, 854. The Legislature consists of 27 Republicans and 3 Democrats in the Senate, and 195 Republicans, 35 Democrats, and 9 others in the House. The vote for Presidential Electors on the 4th of November was as follows: Republican, 39,514; Democratic, 17,331; Greenback, 785; Prohibition, 1,752; scattering, 27.

VIRGINIA. State Government.—The following were the State officers during the year: Governor, William E. Cameron, Readjuster; Lieutenant-Governor, John F. Lewis; Secretary of State, H. W. Flournoy; Treasurer, Isaac R. Barksdale; Auditor, Morton Marye; Second Auditor, Frank G. Ruffin; Attorney-General, Frank S. Blair; Superintendent of Public Instruction, Richard R. Farr; Commissioner of Agriculture, Randolph Harrison; Superintendent of Land-Office, Joseph A. Wingfield; Railroad Commissioner, George A. Martin. Court of Appeals: L. L. Lewis, B. W. Lacy, R. A. Richardson, T. T. Fauntleroy, D. A. Hinton.

Legislative Sessions.—The Legislature which was in session at the beginning of the year adjourned on the 19th of March. An extra session, called at the demand of the Democratic majority, assembled in August, and did not finally adjourn until the beginning of December. At the regular session 571 acts were passed, and at the extra session 200. Of these a large number were local or private. Many political acts were passed over the Governor's veto, the general effect of which was to concentrate power in the Legislature. Among the acts of the regular session were the following:

Providing a new charter for the city of Norfolk; to provide for the appointment of Capitol police, etc.; amending the charter of the city of Portsmouth; to promote medical science, and to protect graves and cemeteries from desecration; to regulate the practice of medicine and surgery; authorizing religious congregations and other benevolent, literary, and charitable institutions which are not incorporate to sell or encumber their property; incorporating the city of Roanoke (formerly town of Big Lick); regulating the granting of licenses for the exercise of any privilege; to amend the act relative to the formation of joint-stock companies; amending the law regulating the appointment of directors of lunatic asylums, the law regulating such asylums, and the law touching the Deaf and Dumb and Blind Institute; dividing the city of Petersburg into new wards, and providing for a new registration therein; amending the law providing for the appointment and removal of district-school trustees; an act for the preservation of oysters, and to obtain revenue for the privilege of taking them within the waters of the State; providing for an eight weeks' course of instruction for the colored teachers of the State; repealing the collateral inheritance tax; regulating the taking of oysters in the Potomac river; to provide for the assessment of taxes on persons, property, and incomes, and imposing taxes thereon for the support of the government and public free schools, and to pay the interest on the public debt, and to provide for the mode of applying for licenses to transact any business in the State, and prescribing the amount of such licenses; providing for the organization of the militia; to prohibit the active participation in politics of school-officers, and officers and employés of asylums and institutions of learning; to lessen the danger of traveling on railroads, and to require them to erect suitable depots, and to fence in railroad-beds; joint resolutions relative to the State debt; and a congressional reapportionment bill.

The following were among the acts of the extra session:

To provide for the appointment of electors for President and Vice-President of the United States by election by the people; providing for the assessment of real estate in 1885 and every fifth year thereafter; to provide for the establishment of the Southwestern Lunatic Asylum; to prevent the spreading of diseases among domestic animals; requiring the banks of the State to make regular reports to the State Auditor.

The following are the chief features of the joint resolutions relating to the State debt:

1. That the people of Virginia have accepted the act of Feb. 14, 1882, known as the "Riddleberger bill," as the ultimate settlement of the debt of this State; that it is their unalterable purpose that that settlement shall be final, and that any expectation that any settlement of the debt of this State upon any other basis will ever be made or tolerated by the people of Virginia is absolutely illusory and hopeless.

2. That the interests of the public creditors, as well as the safety and welfare of the State, require that this settlement shall be accepted by the creditors as well as by the State, and therefore the General Assembly of Virginia, on behalf of all of the people of the State, hereby advise and call upon the holders of all of the bonds and claims against the Commonwealth to come forward with promptness and fund the same.

An election law was passed at the regular session, which was subsequently declared unconstitutional by the Court of Appeals. It provided for the election, by the Legislature in 1884, and every four years thereafter, of three freeholders for each city and county, who were charged with the duty of appointing the election officers for the various precincts. There was no provision in the law requiring these freeholders or the election officers to be of different political parties. At the extra session this law was re-enacted in substantially the same form, except that the requirement that the city and county electoral boards should consist of freeholders was omitted. The Court had made that requirement the ground of its decision. The new act is in litigation.

Finances.—The following are the transactions of the treasury for the year ending Sept. 30, 1884:

ON ACCOUNT OF COMMONWEALTH.

Balance Oct. 1, 1883	$1,362,680 03
Received	2,750,288 43
Total	$4,112,968 46
Disbursed	3,369,576 95
Balance Oct. 1, 1884	$743,391 51

LITERARY FUND.

Balance Oct. 1, 1883	$117,163 47
Received	277,412 00
Total	$394,575 47
Disbursed	296,207 82
Balance Oct. 1, 1884	$98,367 65

ON ACCOUNT OF INTEREST ON PUBLIC DEBT.

Balance Oct. 1, 1883	$17,894 27
Received	565,065 77
Total	$582,960 04
Disbursed	573,656 23
Balance Oct. 1, 1884	$9,303 81

SINKING FUND.

Balance Oct. 1, 1883	$492 60
Received	500,000 00
Total	$500,492 60
Disbursed	499,962 90
Balance Oct. 1, 1884	$529 70

MILLER FUND.

Balance Oct. 1, 1883	$39,033 51
Received	199,522 80
Total	$238,556 31
Disbursed	147,262 23
Balance Oct. 1, 1884	$91,294 08

The debt on Oct. 1, 1884, was as follows: Principal of bonds and certificates funded or fundable under the act of Feb. 14, 1882, $29,218,522.51 ($3,184,258.74 funded and $26,034,263.77 fundable); interest fundable under that act, $3,004,779.57.

Coupon Cases.—The funding act of the State, of March 30, 1871, providing for the issue of bonds and coupons, declared that such coupons should "be receivable at and after maturity for all taxes, debts, dues, and demands due the State." The act of the Virginia Legislature of Jan. 26, 1882 (amended March 13, 1884), required tax-collectors to receive in discharge of taxes, licenses, and other public dues, gold, silver, United States treasury notes, national-bank currency, and nothing else, and thereby forbade the receipt of coupons. Several suits were brought in the Federal and State courts to test the constitutionality of the latter acts. These were taken to the Supreme Court of the United States, and that tribunal, in 1885, decided that the act of the General Assembly of Virginia of Jan. 26, 1882, and the amendatory act of March 13, 1884, are unconstitutional and void, because they impair the obligation of the contract of the State with the coupon-holder under the act of March 30, 1871.

Political.—The Readjuster State Convention met in Richmond on April 23, under the leadership of United States Senator Mahone. Delegates (favorable to President Arthur) to the Republican National Convention were chosen, and candidates for Presidential Electors were nominated.

On April 30 the Straightout Republican State Convention met in Richmond. Delegates to the National Convention of the party, favorable to Mr. Blaine, were chosen. These delegates, however, representing but a few voters, were not admitted to seats at Chicago. The delegates from the Readjuster Convention were recognized. The Democratic State Convention met also in Richmond, on the 14th of May. At the election on the 4th of November the vote for Presidential Electors was as follows: Democratic, 145,497; Republican, 139,356; Prohibition, 138. Eight Democratic and two Republican (Second and Fourth Districts) Congressmen were elected. The Legislature is at present constituted as follows:

PARTY.	Senate.	House.
Democrats	25	67
Republicans	15	33

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WASHINGTON MONUMENT. The Washington Monument, practically completed in 1884, was begun in the early summer of 1848 by the Washington National Monument Society, after designs by Robert Mills, which were, however, considerably modified soon after, the pantheon around the base of the obelisk provided for originally being abandoned. The original foundation of gneiss was 23·3 feet thick, 80 feet square at the base, and 58·6 feet square at its top. The shaft was started 55 feet 1·5 inch at the base, with 15-foot walls, which had a facing of 15 to 18 inch white marble. Work progressed slowly, till, at the close of 1856, the obelisk had been carried up to a height of 156 feet, the expense incurred by the Washington National Monument Society having been $300,000. On the 19th of January, 1877, the society conveyed all its property to the United States. No further work was done till 1878, when the first steps were taken to strengthen the foundation, in accordance with plans made by Lieut.-Col. T. L. Casey, U. S. Engineers, who had charge of the building of the monument from 1877. This strengthening, a delicate operation, since the weight of the 156 feet of shaft alone was 22,378 gross tons, consisted in enlarging the area of the foundation by excavating the earth to a depth of 13·5 feet from under a strip 18 feet wide within the outer edges of the old foundation, and 23·25 feet without the same line, and filling it in with concrete. The area of the foundation was thus enlarged from 6,400 to 16,000 square feet. It was necessary, besides, in order to distribute the pressure of the shaft over this new foundation, to tear about one half of the old rubble-stone base from under the walls of the shaft and replace it by a concrete underpinning extending out on to the new concrete foundation. This was successfully completed in May, 1880, and the work of building the obelisk proper was begun in August of the same year, the old shaft having been first reduced to a height of 150 feet. The shaft, which is 55 feet 1·5 inch square at the base, and 34 feet 5·5 inches square at the top, rises with a batter of 0·247 inch to the foot to a height of 500 feet 5½ inches, and is surmounted by an apex or pyramidion 55 feet high, making the total height 555 feet 5½ inches, the topmost point being 596 feet 9·36 inches above the mean level of the Atlantic Ocean at Sandy Hook, and 597 feet 3 inches above mean low-water level in the Potomac. At the top of the shaft the walls are only 1·5 foot thick, and the apex is built of 7-inch marble slabs, is composed of 262 separate pieces, and is capped by an aluminum point, the largest single article of that metal yet made. At a height of 160 feet the walls were reduced to a thickness of 8 feet 7 inches, and from that level the walls were carried up plumb on the inside. The total cost of the monument was $1,187,710.31, of which $300,000 had been expended by the Washington Monument Society. The weight of the shaft is 43,633 gross tons, the weight of the pyramidion 300 tons, the weight of the iron frame 275, and of the foundation and the earth upon it 36,912 gross tons, making the total weight 81,120 gross tons. A pamphlet has been recently published by John C. Goodridge, Jr., an authority on foundation-work, which throws serious doubt on the stability of the completed structure.

WASHINGTON TERRITORY. Government.—The following were the Territorial officers during the year: Governor, William A. Newell, succeeded by Watson C. Squire; Secretary, N. H. Owings; Treasurer, T. N. Ford; Auditor, T. M. Reed; Superintendent of Public Instruction, R. C. Kerr. Supreme Court: Chief-Justice, Roger S. Greene; Associate Justices, Samuel C. Wingard, George Turner, John P. Hoyt.

General Features.—The Territory comprises an area of 69,994 square miles, of which 3,114 are water. It is estimated that about 20,000,000 acres are timber-lands, on which there are standing 400,000,000,000 feet of merchantable timber; 5,000,000 acres rich alluvial bottom-lands, and 10,000,000 acres prairies and plains. The bottom-lands are nearly all in the western part of the Territory, and the fertile cereal-producing prairies and plains in the eastern part. Shoalwater Bay, just north of the mouth of the Columbia river, contains extensive flats covered with oysters, thousands of baskets of which are annually shipped to various cities on the Pacific coast. Large bodies of land along Puget Sound, near the mouths of the rivers, notably in Snohomish and Skagit counties, have been reclaimed from overflow by diking, and have proved very productive. It is estimated that 27,000 acres have already been diked, and that 125,000 acres more on the sound, besides 23,000 acres on Shoalwater Bay and the Pacific coast, might be thus reclaimed. The population is estimated at 150,000.

Financial.—The Territory is free from debt, and on July 1, 1884, had $47,901.81 in the treasury. The rate of taxation is 2½ mills on the dollar, besides ¼ of a mill for penitentiary purposes. The following table shows the assessed value by counties in 1883 and 1884:

COUNTIES.	1883.	1884.
Adams	......	$175,444
Asotin	......	404,908
Chehalis	$468,879	1,014,751
Clallam	168,183	330,840
Clarke	1,504,880	1,654,800
Columbia	3,392,210	2,894,570
Cowlitz	1,014,616	718,565
Douglas	......	500,000
Franklin	......	149,008
Garfield	1,385.768	1,102,126
Island	407,058	416,108
Jefferson	748,840	878,619
King	8,780,195	10,147,640
Kitsap	1,049,700	1,078,002
Kittitas	......	947,740
Klickitat	1,050,858	1,184,766
Lewis	1,488,878	1,514,280
Lincoln	......	1,001,982
Mason	363,689	546,628
Pacific	472,786	598,195
Pierce	2,948,906	4,385,062
San Juan	196,869	219,683
Skamania	185,588	92,308
Skagit	......	902,870
Snohomish	548,811	604,362
Stevens	235,140	242,102
Spokane	3,183,873	3,200,120
Thurston	1,305,551	3,149,236
Wahkiakum	248,648	320,660
Walla Walla	5,586,882	5,356,795
Whitman	3,664,148	3,468,684
Whatcom	985,060	608,827
Yakima	2,398,921	1,814,818
Totals	$44,107,567	$51,008,484

Adams, Asotin, Douglas, Franklin, Kittitas, Lincoln, and Skagit are new counties, assessed for the first time in 1884.

Agriculture.—In fertility of soil and climatic conditions favoring the production of cereals, probably no country in the world can surpass that portion of the Territory bordering on Idaho, a boot-shaped region extending southward from near Spokane Falls to Colfax, and thence to and including the Walla Walla valley. It was expected that the Oregon Railway and Navigation Company would bring out from eastern Washington Territory alone the present year 150,000 tons of wheat and flour. Great interest is also centered in the Big Bend country lying west of Cheney. During the past year settlers have peopled this region more rapidly than ever. The extensive valleys of Klickitat, Yakima, and Kittitas, just east of the Cascade range, have great capabilities of development, being adapted to fruits and cereals as well as to stock-raising.

In western Washington less attention has hitherto been paid to agriculture than to lumbering and mining; but the recent results of hop-farming in this part of the Territory and the stimulus of an increased demand for fruits, vegetables, and hay for home consumption, together with the enormous yield and the export demand for oats, barley, and potatoes, have induced many to undertake the development of rich alluvial "brush-lands," which produce an annual income amounting to an enormous percentage upon the outlay required to bring them into cultivation.

The climate and soil in the bottom-lands and valleys of Washington Territory seem peculiarly adapted to the cultivation of hops; and more attention seems to have been paid to the cultivation of this plant in the vicinity of Puget Sound than elsewhere in the Territory, where it thrives in rich alluvial sandy bottoms. The area in hops in 1884 is stated as follows: Number of acres, 2,855, divided as follows: Pierce county, 1,277 acres; King county, 878 acres; scattering, 200 acres. The average yield of hops in Washington Territory for twelve years last past has been 1,600 pounds an acre, not including the present exceptional year.

Large portions of the Territory, particularly east of the Cascade mountains, are admirably adapted to grazing. Cattle- and sheep-raising are extensively carried on. The wool-clip of 1884 is estimated at 8,000,000 pounds.

Coal.—The coal-fields of the Territory lie west of the Cascade range. Those of Bellingham Bay, near the northern boundary, were first discovered and worked. There is another field south of Olympia, in the valley of the Skookumchuck, on the Chehalis. East of Seattle and Lake Washington are the Seattle coal-mines, which have been more extensively worked than any others. The following table shows the shipments from Seattle since 1871:

YEARS.	Tons.	YEARS.	Tons.
1871	4,918	1878	128,582
1872	14,880	1879	182,268
1878	18,572	1880	188,497
1874	9,027	1881	147,418
1875	70,151	1882	151,418
1876	104,556	1888	218,499
1877	111,784		
Total			1,240,465

The shipments from Puget Sound in 1888 exceeded 400,000 tons, and 100,000 were used for home consumption.

Lumber.—The production of lumber is one of the most important interests of the Territory. On Puget Sound and its estuaries and tributaries are numerous large mills. The actual cut of all the mills on Puget Sound during 1888 was approximately 500,000,000 feet. Of this quantity, 250,000,000 feet found a market in California, 100,000,000 feet in foreign lands, and upward of 100,000,000 feet were used at home. In addition about 50,000,000 pickets and laths were manufactured and shipped to other States or foreign countries, and at least 1,000,000 shingles. There is considerable shipbuilding on the Sound.

Salmon.—There are nine canneries on the north side of Columbia river, besides several in other parts of the Territory. The annual product is valued at nearly $1,000,000.

Commerce.—Only two ports of the United States exceed Port Townsend in American ocean steam-vessels in foreign trade, to wit, New York and San Francisco. The coastwise trade with California and Alaska is important. The surplus grain, wool, and salmon of the eastern and southern portions of the Territory have hitherto been principally shipped by the way of the Oregon custom-houses at Portland and Astoria, and no separate account has been taken of its productions. Thousands of cattle are being driven or shipped by rail direct to the East without any custom-house record being taken of their numbers and value; and shipments of grain for this season have been made by rail in the same direction, so that the aggregate exports of the Territory can not now be accurately computed. Eighty-four steam-vessels are registered in the collection district of Puget Sound, all employed in the domestic traffic of Puget Sound alone.

The number of vessels documented at Port Townsend for the fiscal year ending June 80, 1884, was 164, of which 86 were sailing and 78 steam, with a total tonnage of 47,832 tons. There were entered and cleared in the same district at the custom-house for the fiscal year ending June 80, 1884, 1,788 vessels, with an aggregate tonnage of 998,518 tons. Of this number 845 vessels were coastwise, having 826,125 tons, and 1,448 were foreign, with a tonnage of 672,888 tons. At least one third of the Puget Sound tonnage is of licensed vessels running to San Francisco and other coast ports, not required to report to the custom-house, and not included in the above estimate. The total value of exports for foreign trade for the fiscal year 1884 was $1,946,894; domestic and coastwise, $6,000,000. The proportion of American to foreign bottoms in the Puget Sound collection district trade is 28 to 1.

Banks.—There are 15 national banks, with a total capital of $950,000 and individual deposits in 1888 to the amount of $1,604,805. Nine private banks and banking institutions are reported. There is lack of capital. Money readily commands more than 1 per cent. a month.

Railroads.—The Oregon Railway and Navigation Company is operating 204·5 miles of main line and twenty-one miles of siding in Washington Territory. The Northern Pacific Railroad Company is operating 824·7 miles. The Oregon Improvement Company is operating twenty-one miles of steel-laid narrow-gauge road between Seattle and New Castle in King county. Of the extension up Cedar River valley, seven miles between Renton (12·5 miles from Seattle) and the MacAllister coal-mine are now being operated. By December 1 it was expected the rails would be laid to the Black Diamond mine (81·5 miles from Seattle), and by Jan. 1, 1885, to the north bank of Green river, making a total of 46 miles under the control of this company. The Olympia and Chehalis Valley Railroad, narrow gauge, seventeen miles, connects Olympia with the Northern Pacific

Railroad at Tenino. There are in all 660 miles of railroad in the Territory, of which about 800 miles are now operated. A company has been formed, and the work begun, to construct a ship-canal from Lake Washington, by way of Lake Union, to Puget Sound.

Territorial Institutions.—The Hospital for the Insane is at Fort Steilacoom. This post having been abandoned as a garrison by the United States, the buildings and 600 acres of land were transferred to the Territory, at a nominal price, for an insane asylum. It was first occupied for this purpose in 1871. The number of patients, June 30, 1884, was 136. The hospital is free to all the insane in the Territory. The last Legislature appropriated $32,500 a year for it.

The Territory has a Penitentiary building, 36 by 150 feet in area, containing thirty-six cells, on twenty acres of land at Seatco, near the Northern Pacific Railroad. The number of prisoners received during the year ending June 30, 1884, is 31; discharged, 25; escaped, 2. A large establishment for the manufacture of doors and blinds has recently been erected near the Penitentiary, and convict-labor is employed therein.

Educational.—The following is a report of statistics of the public schools of Washington Territory for the year beginning July 1, 1883, and ending June 30, 1884.

Paid for teachers' wages	$152,142
Paid for rent of school-room	558
Paid for repair of school-house	5,408
Paid for school furniture	15.081
Paid for fuel and other expenses	16,539
Paid for school-house sites	16,077
Paid for school-buildings	62.058
Total amount during the year	287,530
School funds at close of year	84,201
Value of houses and grounds	481,706
Value of furniture	86,308
Value of apparatus	8,202
Average salary of male teachers a month	48
Average salary of female teachers a month	39
Children enrolled during year	22,341
Not attending school	9,258
Total	31,599
Average number of months public school has been taught	4
School-houses built during year	87
County teachers' institutes held	10
School districts in the Territory	787
School-houses in the Territory	652
Houses having school (some rented)	668
Graded schools in the Territory	21

The University of Washington Territory is at Seattle, on a campus of ten acres. It has four courses of study. There are 157 students in attendance, 87 male and 70 female. Its revenues are derived from a small biennial appropriation by the Legislature and tuition fees. There are nine instructors.

Churches.—The Methodists have 42 church organizations; Baptists, 33; Congregationalists, 40; Presbyterians, 33 (4 Indian); Episcopalians, 13 (also 10 missionary stations); Roman Catholics, 26 (also 6 chapels and 55 mission stations).

Newspapers.—There are fifty-three newspapers published in the Territory, of which eight are daily, one is an educational monthly, one is a real-estate and trades monthly, one a semi-weekly, and the remainder weekly journals devoted principally to local interests.

Indians.—There are fifteen reservations in the Territory, of which the total Indian population is 10,635. The total amount of land within these reservations is 6,332,885 acres, of which 6,290,964 acres have been surveyed and estimated. The number of acres allotted in severalty to the Indians is 30,631. The number of Indian children attending the schools is reported to be 481. Patents for all the lands on the Nisqually and the Squaksin Reservations have just been granted to the Indians residing thereon. The land occupied by these reservations consists largely of the best agricultural, grazing, timber, and mineral lands. In many cases the Indians cultivate the soil.

Political.—On November 4, the delegate to Congress, militia officers, and members of the Legislature were elected. The Republican candidate for delegate was J. M. Armstrong; Democratic candidate, Charles S. Voorhees. The campaign between these candidates was fought on the question of the Northern Pacific Railroad land-grant. The Democratic platform pronounced unconditionally for the forfeiture of all unearned lands, while the Republican platform declared for the absolute forfeiture of the unearned lands on the Columbia river branch and against the forfeiture of those on the Cascade branch, provided the company shall complete the same by Jan. 1, 1888, and hold its lands subject to certain stated conditions. The result was the election of Voorhees, who received 20,995 votes, to 20,847 for Armstrong; Democratic majority, 148; total vote, 41,842, of which 10,000 to 12,000, it is estimated, were cast by women. For militia officers, the Republican majority was about 7,000. The Legislature of 1885 consists of 8 Republicans and 4 Democrats in the Council, and 16 Republicans and 8 Democrats in the House.

WEST INDIES. British. *Jamaica.*—The area of Jamaica is 4,193 square miles; population, 580,804, of whom 444,186 are negroes, and fewer than 15,000 whites. The average temperature on the coast, from June to November, is 80°, and from November to June, 75°. In the mountains, 4,000 feet above sea-level, the average is 65° the year round. The mercury has never been known to go higher than 95°, nor below 60°.

The Captain-General and Governor-in-Chief of the island is Gen. Sir Henry Wylie Horman. The American Consul at Kingston is G. E. Hoskinson.

The Governor draws a salary of $30,000, with $2,500 allowance for traveling expenses. There is a Colonial Secretary at $6,500 a year, with a staff of assistants, in all costing $30,000 a year for salaries; a Department of Public Works, with a pay-roll of about $66,000 yearly; an Audit Office, $19,825; a Treasury, $17,800; Stamp Department, $6,355; Collector-

General's Department, $19,450; Customs Department, $54,355; Inland Revenue Department, $78,890; Post-Office, $36,780; Judicial Establishment, $186,780; Medical Department, $257,285; Constabulary, $246,993; Prisons and Reformatories, $150,000; Education, $117,000; Harbor-Master Department, $15,000; Registrar-General's Department, $14,000; Government Printing-Office, $18,000; Public Gardens and Plantations, $16,000; Immigration Department, $10,500; besides sundry other paid officials all over the island.

In 1882 there was raised by actual taxation $2,415,315, or an average of $4.10 per head of population. Then the people protested so loudly against the system, that a royal commission was sent out from England to investigate the grievances. The commission spent about two months in the island, and early in 1884 presented their report, from which it appears that the debt of the island was about $6,763,000; that the Government had wrongfully converted trust funds for educational and charitable objects to its own use when in financial difficulties, and used sinking funds to pay loans; and that the commissioners felt called upon to condemn the conduct of the officials.

Every department was pronounced more or less inefficient and extravagantly managed, and the educational system a disgrace. The commission recommended a remodeling of the departments, thereby effecting a saving of $135,000 annually in salaries. They also recommended that the Mayor and Corporation of Kingston be elected by the tax-payers, and that the gas- and water-works, markets and slaughter-houses, all Government institutions, be turned over to the new corporation.

In November, 1883, a deputation consisting of the leading members of the West India body in London waited on Earl Derby, the Colonial Secretary, and represented strongly the outrages perpetrated by the Crown Government. The earl promised that he would inaugurate a new departure in which the people were to have substantial responsibility and practical control in matters of finance. In the mean time public meetings had been held in Jamaica, in which the policy of the Crown Government was so vigorously denounced that the home Government became alarmed and telegraphed to Gen. Gamble, then acting Governor, that "the representative element would be introduced." In December, 1883, Gov. Norman arrived at Kingston and assumed office, and soon after promulgated the scheme of Earl Derby, which consists in allowing the people to elect a minority to the legislative councils, instead of the Governor nominating them, the Governor always having nine votes to the people's eight, which he can use to carry any measure he pleases. As soon as the people understood the case, they became intensely excited and indignant, and public meetings were held in all parts of the island, denouncing what they called a fraud. While the people were looking to Parliament for a new Constitution and representative government, even more pressing considerations diverted their attention to the ruinous condition of the sugar-planting interest. When, in the summer of 1884, Jamaicans learned that a Hispano-American reciprocity treaty was being negotiated at Madrid, they canvassed various remedies, and finally free access for the sugar of Jamaica to the Canadian market was sought. But this could only be obtained by annexation, and after considerable semi-official negotiation toward that end, in London and in Ottawa, the scheme fell through.

The Jamaicans then revived the idea of reciprocity with the United States after the Spanish-Cuban plan. As early as March, 1884, West Indian sugar-traders had been urging Lord Derby to include the British West India colonies in the "favored-nation" clause of the treaty of 1815 with the United States, or to allow the colonies to enter into reciprocal commercial relations with America under a special treaty. Lord Derby replied that there was no prospect of negotiations to that effect leading to any result, and that the Government was not prepared to allow the colonies to enter into such agreements with America. The subject was again put forward in December, but upon the rejection of the Nicaragua treaty by the United States Senate, the matter was dropped.

In 1884 four lines of steamers were running between Kingston and New York. The lively competition reduced the freight on flour to 25 cents a barrel, and other freight in proportion.

The American West India and Pacific Telephone Company began operations at Kingston in 1884.

Trinidad.—The area of Trinidad is 1,754 square miles; population, 154,281. The island is the most southerly of the Windward group, and, next to Jamaica, the largest and most valuable of the West India islands belonging to Great Britain. It lies immediately off the northeast coast of Venezuela, separated only by a narrow strait. The Governor is Sir S. Freeling; the American Consul at Port of Spain is Mr. J. Fowler.

The extensive sugar and cocoa plantations of the island are worked by East India coolies, of whom there are 60,000 on the island, all Buddhists. Their great holiday, the Mohurrum, or Hoosay feast, is celebrated on October 30. They then build pagodas from papier-maché, fill them with gifts, and carry them to the sea-beach. In consequence of the sugar crisis on the island, the hours of work had been increased, and the daily wages reduced from 35 cents to 30 cents. Discontent was perceptible, and the Governor deemed it advisable to forbid the celebration, in spite of the remonstrances of the coolies, who insisted that their religion prescribed it, and that before they left India they had been expressly guaranteed the free exercise of their religion. In answer to this remonstrance, the Governor ordered the man-of-war Dido to come round to the San Fernando roadstead and land marines. As the main procession would have to traverse the town, in order to get to the sea-shore, he ordered thither 74 negro policemen and 20 soldiers. At Port of Spain, which has a population of 35,000, 25 policemen and 40 soldiers were kept in readiness. There everything remained quiet, but not so at San Fernando. When the coolie procession with its pagodas arrived at the gates of the town, the policemen and soldiers stopped them. The coolies betrayed the greatest consternation and excitement, and a few of them raised their pilgrim staves, as though they would force a passage. They were unarmed. Immediately the officer in command caused the riot-act to be read, and without a word of further warning he ordered firing into the crowd. The volley killed 12 and wounded 93, among them women and children.

On the morning of Jan. 28, 1884, a great fire destroyed almost entire the city of Port of Spain, the loss being estimated at over $400,000. The fire originated in the Union Club House, and in a short time the whole southeastern portion of the town was in ruins. The town has no fire department.

Discoveries of new asphaltum-beds were made in 1884, on the north shore, about half a mile east of the Bay of Esperanza. In some places the pitch flows up out of the earth in a semi-fluid condition. A workman has dug to the depth of eight feet, and found the pitch at that depth free from all admixture with organic matter derived from the thick growth of brushwood in the neighborhood.

The sugar shipments from the island in 1884 amounted to 44,293 hogsheads, 10,107 tierces, and 137,204 bags, against 39,964 hogsheads, 10,127 tierces, and 115,279 bags in 1883. The cocoa shipments were 13,366,845 pounds, against 12,030,050 and 11,919,593 in 1883 and 1882 respectively. Of asphaltum there were shipped 39,797 tons, against 39,811 in 1883, and 30,673 in 1882.

The American trade with the British West Indies for five years is shown in this table:

YEAR.	IMPORTS INTO THE UNITED STATES.			EXPORTS.
	Sugar.	Molasses.	Total imports.	Total exports.
1880	$2,450,810	$683,629	$5,482,002	$6,849,878
1881	3,377,390	678,304	6,294,046	8,138,565
1882	2,902,845	550,885	6,644,887	7,824,298
1883	4,986,290	520,580	8,786,112	8,241,622
1884	5,900,079	265,055	9,791,616	8,558,244

British Guiana.—This is a colony on the northern coast of South America, having its northernmost limit near the mouth of the Orinoco; area, 85,425 square miles; population, 257,473. The Governor is Sir H. T. Irving. The American Consul at Demerara is Philip Figyelmesy.

The foreign debt of the colony amounts to £396,000. The income is $2,295,000, and the outlay $2,145,000.

The Royal Geographical Society has undertaken to bear a large part of the expense of E. F. im Thurm's expedition to the wonderful table-topped mountain Roraima. (See MOUNTAIN EXPLORATION.)

The foreign trade to this colony is as follows: Imports, $10,000,000; exports, $15,400,000. Of the total exports sugar amounted to $12,500,000, there being exported of it from Jan. 1 to Oct. 31, 1884, 91,696 tons, against 85,955 in 1883, out of which there went 77,115 tons to England, against 41,644 the previous year. Rum was shipped to the amount of $1,450,000, so that sugar and its products may be considered as constituting the whole export of the colony, which may be said to be all shipped to England and the United States.

British Honduras.—This is a colony on the Atlantic coast of Central America, fronting on the Gulf of Honduras; area, 7,562 square miles; population, 27,452. The Governor is R. T. Goldsworthy. The American Consul at Balize is A. E. Morlan.

The revenue of the colony is $230,000, and the expenditure $225,000. The total trade movement in 1883 of the colony was as follows:

	Imports.	Exports.	Total trade.
Great Britain	$591,204	$666,000	$1,257,204
United States	498,247	327,000	825,247
Central American republics	60,600	172,000	232,600
All other countries	13,949	88,000	101,949
Total	$1,164,000	$1,253,000	$2,417,000

Of the exports above given, products to the value of $378,000 were foreign, the greater portion of these going to the Central American states and to the United States; those going to the former being composed principally of British cotton goods and other British manufactures, while those shipped to the United States were composed of Central American products.

Great Britain imported from Honduras during the calendar year 1883 products to the value of $1,210,000, and exported thereto manufactures to the value of $685,000; an increase in the first of $48,000, and in the second of $78,000.

The principal exports of British Honduras consist of fruits, cabinet and dye woods, and sugar. British exports thither in the order of their value were as follow: Cotton goods, apparel and haberdashery, soap, woolens, iron manufactures, linens, hardware and cutlery, arms and ammunition, beer and ale, silk goods, cordage, earthen and glass ware. Foreign goods to the value of $110,000 were among the British exports to the colony during 1883.

The exports from the United States consist of breadstuffs and provisions, cotton goods, hardware and cutlery, leather, tobacco, machinery, and a general assortment in small lots of various other manufactures.

Danish.—(For details relating to area and population, see "Annual Cyclopædia" for 1883.) The Governor of the colonies is Col. C. Arendrup. The American Consul at St. Thomas is V. V. Smith.

Ste. Croix, commonly called Santa Cruz, celebrated, on Sept. 6, 1884, the one hundred and fiftieth anniversary of its union with the Danish kingdom.

St. Thomas is now a mere port of call for vessels repairing and awaiting orders by cable. From being an entrepot, distributing many millions of goods annually, it has sunk to a position of comparatively little commercial importance. Still, the chief lines of steamers call there.

American trade has remained comparatively important; on the one hand, because the sugar produced on the island of Ste. Croix is very much liked in the United States, and, on the other, because the revictualing-vessels and neighboring islands are glad to buy American flour and provisions at this central point of distribution. Latterly, however, even American trade is on the wane in the locality, as the following few figures of American exports to the Danish West Indies will show:

YEAR.		YEAR.	
1879	$886,857	1882	$716,591
1860	689,104	1883	694,565
1861	721,128	1884	578,997

Dutch.—(For details relating to area and population, see "Annual Cyclopædia" for 1883.) The Governor of Curaçoa is N. van den Brandhof. The American Consul at Curaçoa is Almont Barnes, and at St. Martin's, D. C. von Romondt. Curaçoa, being close to the northern coast of Venezuela and a free port, has, since the independence of the Colombian republics, been an important entrepot for merchandise from Europe and the United States. Latterly, however, Venezuela has begun to discriminate against such importation *in transitu*, and Curaçoa has experienced somewhat the fate of St. Thomas. The island has been a thorn in the side of Venezuela as much as Trinidad. While the South American republic was being chronically convulsed with civil strife for thirty-five years, most of the "pronunciamientos" and expeditions against the men that chanced to be in power were launched from there. Since Venezuela has passed the era of revolutions, Curaçoa has even lost this importance.

The recent American trade with the Dutch West Indies is shown in the following table:

YEAR.	Total imports.	Total exports.
1879	$647,402	$622,171
1880	1.355,517	887,288
1881	2,594.876	921,475
1882	1.582.188	743,804
1883	882,058	579,690
1884	647,592	580,115

French.—(For details relating to area and population, see "Annual Cyclopædia" for 1883.) The Governor of Martinique is M. Allègre; the Governor of Guadeloupe and dependencies is M. Laugier. The annual expenditure of Martinique is 4,593,000 francs, and that of Guadeloupe 5,112,000.

On August 17, 1884, M. Deschanel, editor of the Paris "Journal des Débats," began an agitation, under the prompting of Prime-Minister Ferry, for the cession to France by England of the Leeward Islands, in exchange for French concessions on the coast of Newfoundland. M. Deschanel, in a lecture before the Academy of Moral and Political Sciences, advocated the acquisition of the Leeward Islands as a part of the prospective French line *via* Panama, Tahiti, and Australasia.

Martinique.—This island, in common with all other sugar-producing countries, has suffered severely from the low prices ruling in Europe and this country. Following a hint thrown out by the home Government, the Consul-General of Martinique, early in July, 1884, passed a bill abolishing the so-called "octroi de mer" decreed under the Second Empire, and in its place re-establishing discriminating duties in favor of goods from France. It was a deliberate return to the old colonial system at a time when even Spain began to abandon it. Under the provisions of the "octroi de mer" duty, important and rapidly increasing business relations had sprung up between Martinique, the United States, and Canada. While Martinique imported thence provisions and other articles of food a great deal cheaper than France could furnish them, the United States and Canada in return drew from Martinique large amounts of sugar, and the American market in particular gradually became the most favorable market to sell the sugar in, because American consumers began to appreciate the superior quality of Martinique sugar.

Meanwhile the French Chambers did their best to indemnify the colonial population for the sacrifice, and in return passed a bill favoring French colonial sugar by a "détaxe," or bounty, of 5 francs the 100 kilogrammes on its being imported into the mother-country.

In 1859 sugar production in Martinique suddenly rose to 29,706 tons; in 1882 it reached 47,888 tons. The smallness of the island has indeed been the only obstacle to sugar-planting expanding still further. Two thirds of the production consist of white granulated, while the product of 1859 was common muscovado sugar. Coffee production has almost ceased. In 1880 only nine tons left the island.

Guadeloupe.—As early as May, the Council-General of Guadeloupe informed the sub-Secretary of State at Paris, M. Félix Faure, that the "octroi de mer" was abolished, and that a duty would thenceforward be levied on foreign merchandise imported. The "octroi de mer," which treated all merchandise on the same footing, whether French or foreign, had been in operation since the spring of 1870, and brought the colony an annual revenue of 1,000,000 francs.

The Governor of Guadeloupe reported that in the very year when sugar was lowest the island produced the largest crop it ever made, of about 55,000 tons; and that the price obtained did not cover cost. The Governor also said that he had addressed a circular of inquiry to all planters and owners of sugar-houses, and they were unanimous in their reply that the only way the sugar industry could be assisted would be to pay a bounty on all sugar shipped, whether to France or abroad. Later he reported that the passage of the sugar bill in the French Chambers had infused new courage into the minds of planters, and that, with the assistance of the Colonial Bank, they had begun to actively prepare their fields for the 1884–'85 sugar-crop.

In January, 1885, news was received that the agricultural and commercial condition of Guadeloupe had improved, and that the coffee-crop would yield well. Up to November 1, there had been shipped 110,261 hogsheads of sugar, against 102,698 in 1883. There had also been exported, during the first eleven months, 196,497 litres of molasses, 152,226 kilogrammes of cocoa, 374,010 kilogrammes of annotto, 1,240,136 kilogrammes of logwood, and 1,801 kilogrammes of vanilla.

The American trade with the French West Indies is shown in this table:

YEAR.	IMPORTS.			EXPORTS.		
	Sugar.		Total imports.	Wheat-flour.		Total exports.
	Pounds.	Dollars.	Dollars.	Barrels.	Dollars.	Dollars.
1880...	70,023,988	2,692,183	2,717,004	94,531	576,959	1,799,972
1881...	59,694,077	2,429,837	2,464,577	94,741	540,275	1,520,651
1882...	53,952,340	2,385,578	2,424,755	82,608	560,118	1,556,898
1883...	74,910,388	2,875,801	2,895,857	91,976	581,618	1,783,832
1884...	83,509,811	3,117,175	3,186,402	85,297	462,482	1,790,584

Guiana.—(For details of area and population, see "Annual Cyclopædia" for 1883.) The Governor is M. Chessé. The annual expenditure of the colony is 2,123,000 francs.

French Guiana, about one fourth the size of France, has a population of only about 27,000 souls, which since 1867 has remained stationary. The area cultivated has steadily diminished, but in 1881 gold was mined to the amount of $1,133,000, since when it has attracted a little more attention, but not enough to start a current of genuine immigration. The fact that it is a penal colony seems to prevent the regeneration of the country.

The imports into French Guiana in 1881 were 9,179,000 francs, and the exports 844,000. The following table shows the American trade with French Guiana:

YEAR.	Total imports into the United States.	Total exports to Guiana.
1880....................	$3,272	$76,084
1881....................	8,103	65,868
1882....................	18,458	97,677
1883....................	18,437	102,084
1884....................	2,321	103,607

WEST VIRGINIA. State Government.—The following were the State officers during the year: Governor, Jacob B. Jackson, Democrat; Secretary of State, Randolph Stalnaker, Jr.; Treasurer, Thomas O'Brien; Auditor, Joseph S. Miller; Superintendent of Free Schools, Bernard L. Dutcher; Attorney-General, C. C. Watts. Judiciary, Court of Appeals: Presiding Judge, Okey Johnson; Associates, Samuel Woods, Adam C. Snyder, and Thomas C. Green.

Financial.—The following statements show the condition of the finances for the two years ending Sept. 30, 1883, and Sept. 30, 1884:

Receipts during the year ending Sept. 30, 1883.	$818,783 93
Balance at the end of preceding year..........	301,252 29
Total..	$1,120,036 22
Disbursements during the same period........	877,710 37
Balance Oct. 1, 1883..........................	$242,325 85
Receipts during the year ending Sept. 30, 1884.	$860,992 62
Balance Oct. 1, 1883..........................	242,325 85
Total..	$1,103,318 47
Disbursements during the same period........	880,619 74
Balance Oct. 1, 1884..........................	$222,698 73

The payments into the treasury for 1883 and 1884 were largely in excess of the amounts estimated by the Auditor for these years. The excess for each year was made up from temporary loans made by the State to meet casual deficits in the treasury, amounting for 1883 to $153,000, and for 1884 to $113,000. There was a further increase for 1884 by reason of an increase of the levy for 1883 of five cents on the $100 value, the revenue for which year was paid into the treasury during 1884.

The following table shows the increase in the personal property since 1881, as also the increase of real estate, under the reassessment act of 1882:

PROPERTY.	1881.	1882.	1883.	1884.
Real estate....................................	$105,929,521 37	$106,910,441 28	$118,826,874 44	$118,951,675 03
Personal property	37,562,854 00	39,678,735 50	44,669,962 24	46,167,253 00
Total....................................	$143,492,375 37	$146,548,176 78	$163,496,836 68	$165,118,928 03

Hospital for the Insane.—The entire building was completed in 1881, and was at that time deemed to be sufficient for many years to come. All of the insane were removed from the county jails to the hospital, making the total of patients treated for the year ending Sept. 30, 1881, 539. The reports of the superintendent for the past three years show a gradual increase of patients, and the hospital is now crowded to its fullest capacity. The number of patients admitted for the year ending Sept. 30, 1884, was 176; number discharged, 154.

Deaf, Dumb, and the Blind.—The principal of the institute two years ago reported that the buildings were crowded to their utmost capacity, and a large number entitled to admission could not be received. The average number of pupils in attendance for that year was 108. Average number for 1883, 96. Average number for 1884, 96. Enrolled for attendance Oct. 1, 1884, for ensuing year, 111.

Penitentiary.—The prison is now nearly self-sustaining, owing to an increased contract price per day for the labor and a reduced per capita cost for maintaining the prisoners. There are only 229 cells, while the prisoners number 256.

Education.—The following table shows the progress made by the free schools in the past two years:

Teachers, 1884	4,660
Increase in two years	800
Schools open in 1884	4,269
Increase in two years	241
Value of school property, 1884	$1,872,949
Increase in two years	$48,962
Youth from six to twenty-one years of age	227,958
Increase in two years	11,855
Enrolled in school, 1884	166,272
Increase in two years	10,728
Average daily attendance in 1884	101,089
Increase in two years	4,420
Receipts from all sources, teachers' fund, 1884	$781,826 77
Increase in two years	$111,976 77

The invested school fund, on Oct. 1, 1884, amounted to $514,159.33.

There are six well-attended normal schools. The State University, at Morgantown, has received a limited support from the treasury, but not to the extent of its needs. Its buildings are not completed, and many appliances are wanting. For its support an appropriation of $19,004.21 is asked for 1885, and of $21,262.79 for 1886.

Political.—Two Democratic State Conventions were held, one at Charleston on April 16, to appoint delegates to the National Convention of the party, and the other at Wheeling on the 23d of July, to nominate candidates for State officers. At the April convention, the following resolution was adopted:

> That every citizen of our State shall bear his just proportion of the burdens of government, and no more; and this under appropriate legislation. To this end, if the courts shall hold the tax exemption act of 1881 to be unconstitutional, we favor the submission of a constitutional amendment to the people to enable them in their sovereign capacity to decide what property shall be exempted from taxation. In the mean time, as there are honest differences of opinion growing out of the tax clause of the Constitution and the legislation pertaining thereto, such differences should be deferred for such final decision by the courts and the people and appropriate legislation thereon.

The following were the candidates: For Governor, E. Willis Wilson; Secretary of State, Randolph Stalnaker, Jr.; Treasurer, William T. Thompson; Auditor, Patrick F. Duffy; Superintendent of Free Schools, Benjamin S. Morgan; Attorney-General, Alfred Caldwell. The Republicans and Greenbackers formed a fusion ticket. At the election on October 14, the Democratic ticket was successful, the majority for Governor being 4,978. The Legislature chosen at the same time consists of 15 Democrats and 11 Republicans in the Senate, and 37 Democrats and 28 Republicans in the House. The constitutional amendment changing the State election from October to November was ratified by a vote of 66,181 to 25,422. On the 4th of November three Democratic Congressmen were elected (Second, Third, and Fourth Districts, in the last by a bare majority). In the First District, Nathan Goff, Jr., Republican, was elected by a small majority. The vote for Electors was as follows: Democratic, 67,317; Republican, 63,096; Prohibition, 939; Greenback, 805.

At the November election about 2,000 ballots, bearing the Prohibition State ticket, were cast, but were not regularly returned by the election officers. On the strength of these votes, Mr. McGregor, the candidate for Governor, served a notice of contest on Mr. Wilson. The grounds of contest are these: The amendment was carried on October 14, therefore the State officers voted for on that day are not eligible; the day of election being changed to November 4, and the Prohibition ticket being the only one voted, it is therefore elected. Additional interest is given to the matter in the Fourth Congressional District from the fact that the Democratic member-elect has only 150 majority, while 500 Prohibition tickets, with the name of the Republican candidate on them, were thrown out.

Capitol-Building.—It is expected that the new State-House at Charleston will be ready for occupancy in May, 1885, and that the seat of government will then be removed thither from Wheeling.

WISCONSIN. State Government.—The following were the State officers during the year: Governor, Jeremiah M. Rusk, Republican; Lieutenant-Governor, Samuel S. Fifield; Secretary of State, Ernst G. Timme; State Treasurer, Edward C. McFetridge; Attorney-General, Leander F. Frisby; State Superintendent of Public Schools, Robert Graham; Railroad Commissioner, Nils P. Haugen; Commissioner of Insurance, Philip L. Spooner, Jr.; Commissioner of Labor Statistics, Frank A. Flower. Supreme Court: Chief-Justice, Orsamus Cole; Associates, William P. Lyon, David Taylor, Harlow S. Orton, John B. Cassoday.

Finances.—Of the general fund there was on hand Sept. 30, 1882, $364,220.68. The receipts of the fund for the biennial term were $2,907,204.04, the disbursements therefrom $2,332,857.57, leaving a balance Sept. 30, 1884, of $938,567.15.

For the year ending Sept. 30, 1884, the disbursements from the general fund were $1,036,385.17, being $150,422.37 less than for 1882. The greater part of this reduction arises from the fact that, while in 1882 the legislative expenses and cost of publishing the laws were

124,486.28, the biennial system obviated the necessity of any such expenditure in 1884.

There was to the credit of the school fund in the treasury on Sept. 30, 1884, $18,492.67, and the productive school fund on that day amounted to $2,913,612.16, and the school-fund income for the biennial term was $398,973.62. The total amount of the university fund producing an income on Sept. 30, 1884, was $228,009.30. The receipts of the university-fund income for the two fiscal years were $152,058, of which $850 was interest on the Johnson endowment, $20,332.20 were received from the university, $27,801.77 from interest on the university fund, and $103,075.03 from the tax levied. The Agricultural College fund now drawing interest is $286,965.22, and the income of the fund for the biennial term was $34,947.54. The total amount of normal-school fund now drawing interest is $1,290,572 36, and the income for the period, including interest, tuition fees, etc., was $176,228.96.

Assessment Statistics.—The following results are from the abstracts of the assessment rolls for 1884: Horses, 372,959; total value, $17,460,779; average value, $46.82; neat-cattle, 1,090,141; total value, $14,405,189; average value, $13.21. Mules and asses, 7,123; total value, $328,399; average value, $46.10. Sheep and lambs, 1,167,534; total value, $1,836,627; average value, $1.57. Swine, 820,647; total value, $2,162,051; average value, $2.63. Wagons, carriages, and sleighs, 227,791; total value, $4,255,360; average value, $18.68. Watches, 30,329; total value, $537,440; average value, $17.72. Pianos, organs, and melodeons, 28,131, total value, $1,502,699; average value, $53.42. Shares of bank-stock, 46,325; total value, $5,458,012. Value of merchants' and manufacturers' stock, $29,981,773. Value of all other personal property, $31,168,143. Total value of all personal property as aforesaid, $109,096,472. Land, 28,043,040 acres; total value, $248,238,869; average value, $8.85. Value of city and village lots, $130,614,995. Total value of real estate, $378,853,864. Total value of all property, $487,950,336.

Educational.—From the report for the fiscal years 1883 and 1884, of the State Superintendent, the following statistics are gleaned:

Number of persons between four and twenty years of age, June 30, 1884	528,550
Increase since 1882	33,817
Number between seven and fifteen	286,542
Increase since 1882	29,118
Number between four and twenty enrolled in the public schools in 1884	315,804
Increase over 1882	13,790
Number enrolled in normal schools, colleges, and the university during 1884, excluding law department and theological schools, including model department in normal schools	5,821
Number of teachers required for all schools in 1884	7,453
Increase over 1882	366

On the evening of Dec. 1, Science Hall, one of the most important of the State University buildings, was with its contents destroyed by fire. The loss has been estimated at $200,000.

Charitable and Penal Institutions.—Of the whole amount appropriated for these institutions for 1883 and 1884, there remained unexpended on Sept. 30, 1884, $125,891.50, and on Jan. 1, 1885, $56,474.10. The total number of persons cared for in the six State institutions was 3,721, and the daily average was 2,016; the total cost to the State for current expenses to Sept. 30, 1884, was $651,691, and to Jan. 1, 1885, $721,108.40.

The State Hospital for the Insane had an average of 476 patients under treatment for 1883, and an average of 510 for 1884, and cost $96,545.70 for 1883, and $91,722.22 for 1884. The Northern Hospital for the Insane had an average of 567 patients during 1883, and 613 during 1884, and the current expenses for 1883 were $114,735.48, and for 1884 $117,110.52.

The Institution for the Education of the Blind had an average of 57 pupils for 1883, at an expense of $16,670.48; and an average of 63 for 1884, at an expense of $17,525.32.

The Institute for the Education of the Deaf and Dumb had an average of 188 pupils in 1883, and 205 in 1884, at an expense of $35,666.30 for 1883, and $38,536.37 for 1884.

The Industrial School for Boys at Waukesha had an average attendance of 291 for 1883 and 300 for 1884; and the current expenses for 1883 were $42,038.73, and for 1884 $42,229.74.

The State Prison at Waupun had an average of 363 prisoners during 1883, and an average of 398 during 1884. The current expenses of the prison for 1883 were $50,031.29, and for 1884 $53,949.52; and the proceeds of the convict-labor for 1883 were $38,573.53; and for 1884 $44,648.62.

There are now organized, under the laws, eleven county institutions for the care of the insane. The Industrial School for Girls had, on Sept. 30, 1884, an attendance of 165 pupils.

Insurance.—The revenue derived by the State from insurance companies was $57,362.13 for 1883, and $64,904.75 for 1884.

Railroads.—The total miles of railroad in Wisconsin, on Dec. 31, 1884, was 4,204.54; an increase of 370·8 miles since Dec. 31, 1882. The earnings for the year ending June 30, 1883, were $19,706,858.10, an average of $5,344.20 per mile of operated road; the operating expenses and taxes were $12,513,745.92, an average of $3,393.74; and the net earnings for the year were $7,193,112.18, or an average of $1,950.46 per mile. The earnings for the year ending June 30, 1884, were $20,411,573.96; expenses and taxes, $12,689,996.49; earnings per mile, $5,131.91; expenses per mile, $3,190.54; net earnings, $7,721,577.47; and net earnings per mile, $1,941.37. The number of passengers carried in 1883 was 3,807,675, being an equivalent of 169,991,697 passengers carried one mile. In 1884 there were 4,473,480 passengers carried, or an equivalent of 199,919,011 passengers carried one mile; being an average of 46·69 miles traveled by each passenger, and at an average cost of 2·69 cents per mile. The number of tons of freight carried in the State in 1883 was 4,462,367, equal to 758,352,663 tons carried one mile; in 1884 the number of tons of freight carried was 4,670,201, an equivalent of 949,567,585 tons carried one mile, and at an average cost of 1·44 cent per ton per mile. The number of persons employed by the railroad companies for the year ending June 30, 1884, was 15,423, and the total sum paid these employés was $8,834,358.63. The revenue paid to the State for licenses to operate the railroads was $754,269.44 for the year ending Sept. 30, 1884.

Fisheries.—The Fish Commissioners expended $6,518 for 1883 and $5,950.43 for 1884, and were very successful in their work.

Political.—There were two Republican State Conventions: one on the 30th of April, to choose delegates to the National Convention of the party; and the other September 3, to nominate State officers. The incumbents were renominated. The following were the candidates of the other parties:

OFFICE.	Democratic.	Prohibition.	Greenback and Anti-Monopoly.
Governor	N. D. Fratt.	S. D. Hastings.	Wm. L. Utley.
Lieut.-Gov...	A.C.Parkinson	A. A. Kelly.	Milton Ford.
Secretary	H.J.Gallagher	E. G. Durant.	G. W. Jones.
Treasurer....	Frank R. Falk.	C.M Blackman	V. J. Blatz.
Att'y-Gen'l ..	W. C. Silverthorn	F. M. Angel.	M. W. Stevens.
Sup't Schools.	Isaac Stewart.		H. S. Brown.
RR. Comm'r.	Conrad Krez.	H. Sandford.	John Keifer.
Ins. Comm'r..	Ole S. Holum.	Nelson La Due	J. B. Russell.

At the election on November 4 the Republican ticket was successful. The following was the vote for Governor: Republican, 163,214; Democratic, 143,945; Prohibition, 8,545; Greenback, 4,274; scattering, 16.

The vote for Presidential Electors was as follows: Republican, 161,157; Democratic, 146,549; Prohibition, 7,656; Greenback, 4,598; scattering, 72. Seven Republican and two Democratic (Second and Fifth districts) Congressmen were elected. The Legislature of 1885 consists of 20 Republicans and 13 Democrats in the Senate, and 61 Republicans and 39 Democrats in the House.

WOEHLER, FREDERICK, a German chemist, born in Eschersheim, near Frankfort-on-the Main, July 31, 1800; died in Göttingen, Sept. 23, 1882. His father, August Anton Woehler, a man of much skill and learning in veterinary art and rural economy, had been an equerry to the Elector Wiliam II of Hesse-Cassel, but had been obliged to leave that state on account of a personal difficulty in which he became involved with the passionate prince.

The boy Frederick received his earlier instruction from his father and the public school, with private lessons in Latin, French, and music, and soon began to show a taste for forming collections of minerals and for chemical and physical experiments, in which he was encouraged by Dr. Buch, a friend of the family, with whom he prepared the newly discovered element, selenium. His education was continued in the gymnasium at Frankfort, having graduated from which, he in his twentieth year entered the university at Marburg, as a student of medicine. But he had more taste for chemistry, and in the next year transferred his university residence to Heidelberg where he enjoyed the instructions of Gmelin. Having received his degrees from the university in September, 1823, he resolved, upon the advice of Gmelin, to devote himself solely to chemistry, and with that purpose became a student in the laboratory of Berzelius.

During his residence at Marburg, Woehler made some investigations of the compounds of cyanogen, in which he discovered the poisonous iodide of cyanogen shortly after Davy, and described the remarkable behavior of mercuric thiocyanate on heating, which has led to its use in the so-called "Pharaoh's serpents." These studies were continued at Heidelberg upon sulphocyanic and cyanic acids; and he prepared there a prize paper on the "Migration of Matter into Urine," in which he showed that substances taken into the human system become oxidized in passing through it. At Stockholm, besides co-operating with Berzelius in researches in hydrofluoric acid, silicon, boron, and zirconium, he discovered some new compounds of tungsten. After a year's residence in Sweden, two months of which were spent in travel with Berzelius and Alexander and Adolph Brongniart, Woehler returned to Germany to become a "privat docent" at Heidelberg. But he was appointed, in 1824, on the recommendation of Leopold von Buch, Poggendorff, and Mitscherlich, teacher of chemistry in the newly founded Gewerbeschule in Berlin. In 1828 his rank was raised to that of a professor; and he filled this position till 1832, when he retired to Cassel, to be designated in a few months to assist in the organization of a Gewerbeschule there and be professor of chemistry in it. In 1836 he was appointed Professor of Chemistry and Pharmacy at Göttingen, director of the laboratories and inspector-general of all the apothecaries of the kingdom of Hanover, succeeding Stromeyer, who had died. Here, resigning the position of inspector of apothecaries after twelve years, he spent the rest of his life.

The chemical researches of Woehler were extensive and various, and very important. Preeminent among them was the synthesis, published in 1828, of urea, an organic substance, by the molecular transformation of ammonium cyanate, a body of purely inorganic origin. Previous to this discovery a permanent distinction was believed to exist between inorganic and organic bodies, resting upon a "vital force" peculiar to the latter. Woehler's synthesis demonstrated the fallacy of this view, and was the first of a series of researches that have resulted in the contradiction of the doctrine of vital force. At about this time Woehler became acquainted with Liebig, who was also engaged, with Gay-Lussac, in investigations of the cyanogen compounds. The two chemists resolved to work in common, and became life-long friends and sharers of each other's labors. Among the fruits of this fellowship were the establishment of the doctrine of isomerism, researches in mellitic and cyanuric acids, and upon the essential oil of bitter almonds, and the investigation of benzoic acid, which resulted in the discovery of benzoyl, and the establishment of the theory of compound organic radicles. Their joint researches in uric acid resulted in the determination of fifteen new compounds. On the basis of these discoveries the two chemists predicted the extension of researches of kindred character, which, pursued by their successors, have resulted in the discovery of numerous series of organic compounds, each grouped around some radicle common to all its members. Among the later researches of Woehler may be mentioned those which he conducted with Sainte-Claire Deville on boron and its compounds with aluminum and nitrogen, which led to the conception of a theory of the origin of borax in volcanic waters; and those prosecuted with Buff on silicon, which resulted in the discovery of the spontaneously inflammable hydride of silicon, and which promise for that element as imposing an array of compounds as has been grouped around carbon; his improvements in the preparation of nickel, and the observation of the compound of carbon, nitrogen, and titanium in the lustrous copper-colored cubes which are sometimes found in the slags from iron blast-furnaces. "Of all the elements known to the chemist up to the period of Woehler's cessation from work," says Prof. Thorpe, "it may be safely affirmed that there was not one but that had passed through his hands in some form or other, and the number of minerals and meteorites he analyzed is legion. In all, he was the author of 275 memoirs and papers; of these, fifteen were published with Liebig."

His principal published works are his translations of Berzelius's "Yearly Reports" and Berzelius's "Text-Book of Chemistry"; the "Grundriss der unorganischen Chemie und der organischen Chemie" (Sketch of Inorganic Chemistry and Organic Chemistry); "Mineral Analyse mit Beispielen" (Mineral Analysis, with Examples); etc. In summing up the value of Woehler's work, Prof. Thorpe points to the fact that he made Göttingen famous as a school of chemistry; and that on the completion of the twenty-first year of his connection with the university it was found that more than 8,000 students had attended his lectures or worked in his laboratory. "He was a man that the world has delighted to honor, and there was hardly an academy of science or a learned society which has not in some way or other recognized his services to science." Prof. Würtz, in reviewing his career, remarked that "with him disappeared one of the few survivors of that pleiad of *savants* whose labors and celebrity date from the first half of the century, and whom the men of my age were glad to call their masters."

WYOMING. Territorial Government.—The following were the Territorial officers during the year: Governor, William Hale; Secretary, Elliott S. N. Morgan; Treasurer, F. E. Warren; Auditor, Jesse Knight, succeeded by Perry L. Smith; Superintendent of Public Instruction, John Slaughter. Judiciary, Supreme Court: Chief-Justice, James B. Sener, succeeded by John W. Lacey; Associate Justices, Jacob B. Blair and Samuel C. Parks. John C. Perry, of Brooklyn, N. Y., was appointed Chief-Justice Sener's successor, but died before entering upon the discharge of his duties.

Legislative Session.—The Legislature, consisting of 8 Democrats and 4 Republicans in the Council, and 13 Democrats and 11 Republicans in the House, met on January 8, and adjourned on March 8. The following are among the acts passed:

To amend section 1 of an act entitled "An act to preserve the public peace by preventing the display of knives."

To define misdemeanors and to provide for the punishment thereof.

To prevent and punish circulation of obscene and immoral literature.

Concerning the occupation of the public domain.

To amend an act entitled "An act to prevent the spread of malignant disease among sheep."

To amend an act entitled "An act providing for the organization of school districts, schools, and for other purposes."

To authorize the Board of County Commissioners of the several counties to sink artesian wells at their respective county-seats, and at other places in their counties.

To encourage and protect the interests of wool-growers.

To amend section 96 of an act entitled "An act to provide elections, the manner of conducting the same, and for other purposes."

To establish and define a legal standard of time in and for the Territory.

Concerning preliminary examinations of persons accused of crime.

To incorporate the city of Laramie.

To define the offense of an aggravated assault and battery, and to provide for the punishment thereof.

To amend an act entitled "An act to create and regulate corporations."

For the incorporation of churches, parishes, and religious societies.

To punish certain persons for selling or otherwise disposing of spirituous, vinous, fermented, or malt liquors to minors or habitual drunkards.

Authorizing the city of Cheyenne to issue bonds.

Concerning the keeping of swine and goats.

To punish the prescribing of poisons and other dangerous drugs by physicians while in a state of intoxication.

To provide for the revision and compilation of the statute laws.

To amend an act defining crime and providing for the punishment thereof.

To punish the procurement of abortions.

To amend an act entitled "An act regulating the branding, herding, and care of stock."

To provide for the education and training of juvenile delinquents.

To prevent the adulteration of foods, drinks, and medicines.

Concerning taxation of personal property.

To render effective the laws of the Territory of Wyoming within that portion of the Yellowstone Park lying within said Territory, etc.

For the propagation and culture of fish.

To protect the interests of stock-growers.

To create the office of insurance commissioner.

To amend an act entitled "An act to reorganize and establish judicial districts of Wyoming Territory."

Financial.—The assessed valuation of property in 1879 was $10,603,203.95; 1880, $11,815,564; 1881, $13,866,118.06; 1882, $17,600,481.78. The tax levy for 1882 was two mills on the dollar; for the prior years, four mills. The levy for 1883 was but one mill. The valuation for that year was as follows:

COUNTIES.	Valuation.	COUNTIES.	Valuation.
Albany........	$3,656,987 75	Sweetwater...	$3,147,692 50
Carbon........	3,662,868 50	Uinta........	2,096,177 25
Johnson.......	2,628,489 75		
Laramie.......	7,845,055 10	Total....	$22,588,720 85

The Territory has no debt.

The balance in the treasury Dec. 31, 1882, was $47,718.35; received during the following year, $30,184.40; disbursed, $28,120.07; balance Dec. 31, 1883, $49,782.68. The balance March 31, 1882, was $40,258.41; receipts during the following nine months, $32,814.11; disbursements, $25,354.17; balance, $47,718.35.

Public Schools.—The following statistics are compiled from the reports for the school year ending in October, 1883:

School-houses, 39; value of school-houses, $88,546.99; schools taught, 83; pupils enrolled, 3,352; male teachers employed, 19; female teachers employed, 70; average pay of teachers per month, $57.25; average cost of each pupil per month, $2.87.

Penitentiary Commissioners.—The Board of Penitentiary Commissioners, after careful investigation, found that while the cost of maintaining the prisoners of the United States Penitentiary at Laramie City was $1 each a day, and at the Nebraska State Penitentiary at the city of Lincoln 40 cents, they were able to make a contract with the authorities of the Penitentiary at Joliet, Ill., for no greater expense to the Territory than that of furnishing to each prisoner discharged the sum of $5.

Cattle Shipments.—According to a local authority, the total number of cattle sent to market from the Territory in 1883 was 148,612. Of that number 110,138 were shipped over the Union Pacific. The Northern Pacific carried to market 21,969 head of Wyoming stock, and the Burlington and Missouri carried 11,826. Over the Sioux City line 4,679 head were shipped. About 6,000 cars were ordered of the Union Pacific by stock-growers for 1884. That number of cars carried, according to the estimate of 19 animals to the car, 114,000 head of stock. Wyoming has marketed 114,000 cattle over the Union Pacific, and 60,824 head over the Northern Pacific, making a total of 174,824 cattle as the surplus stock of the season. The entire beef output of the Territory for 1884 produced about $5,000,000.

Political.—On November 4 a delegate to Congress and members of both houses of the Legislature were elected. The Republican candidate for delegate was Joseph M. Carey; Democratic candidate, W. H. Holliday. The vote was as follows: Republican, 7,225; Democratic, 5,586; scattering, 19; total, 12,830. The Legislature, which will meet Jan. 12, 1886, has 30 Republicans and 6 Democrats in both houses. Some question existing as to the legality of the election of members of the Legislature, Congress will be asked to ratify it. Toward the close of the year, Crook county was governmentally organized.

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